YOUNG CHILDREN — (Cover Photo) *Children of two or three years of age should be examined by a dentist and started on a regular schedule of care before they have painful dental problems.*

EDUCATION — Dental education is carried on by the Division of Health and county health departments through exhibits, pamphlets, films and other audio-visual aids, seminars and workshops.

ORAL HEALTH and FLUORIDATION

Have you accepted the fact that your teeth are to last you a lifetime? Do you know they will last that long if they are given proper care and treatment from early in life? Perhaps for you it is too late to save some of your teeth; but you may be able to save what you have.

The loss of a leg, arm, kidney, or some other organ — even the loss of your appendix or tonsils — is not anticipated. But people often expect that they will lose all or most of their teeth to dental disease long before they depart this mortal life.

Everyone knows a number of persons — young, middle-age and elderly — who have dental problems that have forced them to resort to dentures — commonly known as false teeth.

Dental diseases are the most common and frequently are accepted as inevitable. If dental diseases made people as sick as measles, mumps and other communicable diseases do, almost 95 percent of the population would be ill. But too few people are willing to accept the fact early in life that their teeth are meant to last them all of their lives.

Dental diseases are complex. They

* begin early in childhood and progress through adulthood and middle age;
* do not heal spontaneously like skin or bone. (They require early detection, treatment, and periodic follow-up to prevent recurrence.)
* cause a tremendous backlog of untreated cases. (These are the results of widespread failure to obtain care.)
* cause bad teeth which in turn affect other parts of the body.

There are many things that can be done to combat dental diseases and save your teeth: Proper care, correct diet, professional care, use of fluoride mouthrinses and dentifrices, and the fluoridation of drinking water.

This issue of **Florida Health Notes** will tell you about your teeth, about the dental diseases that affect them, the symptoms of diseases, how the diseases can be prevented, the importance of fluoridation and good dental care, and of the public health programs of the Division of Health of the Department of Health and Rehabilitative Services, and the county health departments.

Your Mouth Is Important

General health and oral hygiene go hand in hand. Physical and social well-being are necessary in a person's life and a healthy and attractive mouth is part of this well-being. No matter what you think, people usually notice whether or not your mouth gives you a pleasant appearance.

The mouth is the main portal of entry for food and water. It is the organ in which food is masticated (chewed) and passed on its way to the digestive system. It is the doorway by which certain diseases and various infections can enter. Cleanliness of the mouth should be maintained to help keep it in effective working condition. Almost every person can achieve a healthy mouth - providing he practices good health habits from childhood and has access to professional dental care for the control of dental diseases.

The mouth has several parts:

* The lips and cheeks form the doorway to the mouth and hold food and water within until they can be swallowed. They are also used in forming words.
* The muscular tongue is necessary in speaking and preparing food for swallowing. It also has taste buds by which we can discern between sweet, sour, salt and bitter.
* The salivary glands provide a saliva which mixes with food and helps to prepare it for swallowing and digesting.

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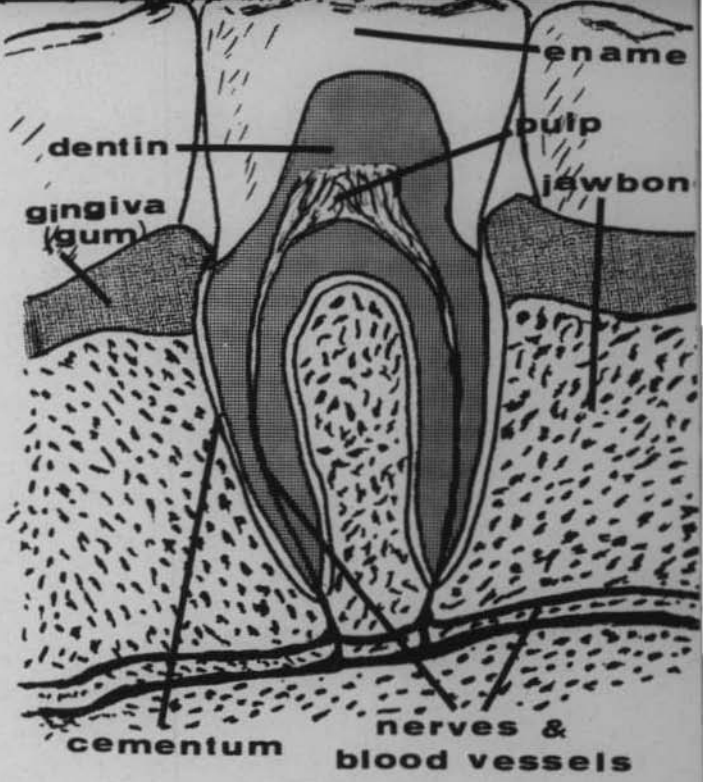

A TOOTH — This drawing of a cross section of a tooth shows the various parts.

There are also the teeth. Infants start cutting their first teeth at about seven months. By the time they are two years old, they usually have a full set of 20 primary teeth. When a child is six, his "baby teeth" begin to be replaced by permanent teeth and he has "mixed dentition" (some primary teeth and some permanent teeth) until he is about 12 years old. He then will have 28 permanent teeth. In his late teens, he may develop the third molars which are commonly known as "wisdom teeth."

Normally, adults have

* central and lateral incisors (four on each of the upper and lower jaw) which are used for cutting food;
* cuspids, first bicuspids, and second bicuspids (six on each jaw) which are used for crushing and tearing food; and
* molars (six on each of the upper and lower jaws) which are used for grinding foods.

The composition of a tooth is as follows:

* the **enamel** is a hard, glossy covering (called a crown) composed mainly of calcium and phosphate;

* the **cementum** - a bone-like structure covering the roots;
* the **dentin** - an ivory-like substance which forms the body of the tooth; and
* the **dental pulp** - the center of the tooth which contains the nerves, the blood vessels and the connecting tissues.

A Wide-Spread Problem

As previously mentioned, 95 percent of the population suffers from some manifestations of dental disease which causes quite a bit of pain and suffering. About 50 percent of the population have lost their natural teeth by the time they are 55 years old. More than 50 percent of all two-year-old children have dental caries. Nearly 50 percent of those under the age of 15 have never seen a dentist. For children of low-income families, this figure is closer to 80 percent. A typical 15-year-old youth already has fully one-third of his teeth attacked by decay and has already lost one permanent tooth. Cleft lip and palate or some form of congenital defect occurs in about one out of every 700 live births.

Public health authorities have estimated that there would be approximately 750 cases of oral cancer in Florida in 1973. In 1972, 388 deaths from cancer of the buccal cavity (mouth) and pharynx occurred in the Sunshine State. The rate of survival of oral cancer - over a five-year period - is about 75 percent when the cancer is localized, or 25 percent if it has had a chance to become regionalized. This compared favorably with lung cancer which

***DENTAL INSPECTION** — A periodical examination by the dentist can reveal how well you clean your teeth and the condition of the gingival tissues.*

has a survival rate of 29 percent, when localized, and nine percent when widespread.

Approximately $4 billion are spent annually in the United States for professional dental services. About nine cents of every health dollar spent in the private sector goes for dental health. This is much higher than the approximately two cents of every federal health dollar. Florida's dental health programs receive less than one percent of the Division of Health's multi-million dollar budget. This is for salaries, some corrective services for indigent children and mothers, inservice training and teaching of dental practitioners and dental hygienists, education of the general public, and the purchase of pamphlets and motion picture films.

The dental backlog has been so large for so long that public health officials agree that it is neither practical nor feasible to expect to eliminate the problem by concentrating on repairing damaged tissues and replacing lost teeth. What we must do is focus on the prevention of dental diseases and place emphasis on bringing a generation of children from infancy to adulthood in good oral health.

The Dental Diseases

Two of the most destructive dental problems - caries (decay) and periodontal diseases (inflammation and loss of the tissues and bone supporting the teeth) - are caused by common origin - the bacterial plaque.

The soft tissues of the mouth produce a sticky substance which lines the interior surface of the mouth and adheres to the teeth. This substance is a thin, semi-transparent coating which is an excellent breeding place for microorganisms that are always in the mouth. Layers of these bacteria, saliva and food debris make up the plaque.

In the absence of good oral hygiene, microbes will grow abundantly on tooth surfaces, especially in pits, fissures, surface cracks and defects at the gum line and in areas between the teeth that are protected from the lips, tongue and cheek action. Food debris, especially sugar, when broken down by the saliva system, can contribute food material for bacterial growth. Certain bacteria consume the food material and give off acid and other toxic substances which can damage the teeth, gums and bone structure.

Dental caries, or the decaying of teeth, can cause tooth dysfunction, infection and loss of teeth. The acids given off by the bacteria attack and dissolve the minerals of the teeth and create microscopic cavities. The attacks recur over and over until the damage becomes visible and shows up as white spots on the tooth surface. If left unattended, the white spots become a visible cavity. The destruction of the tooth can become greatly accelerated to a point where the tooth damage is irreparable.

Another type of bacteria attacks the gum tissues, causing swelling and redness. Repeated attacks ultimately destroy the tough connecting tissue fibres and the gum edges become weak and flabby. This creates gum pockets which serve as protective shelters for larger masses of plaque. The bacteria contained in these pockets flourish on entrapped food particles and tissue fluids Calculus deposits, which are hardened or calcified plaque (commonly known as tartar), irritate the gums and they may start to bleed. This leads to pyorrhea (a periodontal disease).

Periodontal diseases which attack the supporting bone or gingival tissues (gums) surrounding the teeth can result in the loss of the teeth, malocclusion, and other oral or facial problems. Although we have long known how to retard periodontal diseases, they remain the most common disease of man. They afflict three out of four adults and are the major causes of loss of teeth after 40 years of age.

These diseases are not limited to adults. Ninety-five percent of children between five and 14 years have some degree of gingivitis (disease of the gums) and one out of four children have destructive periodontal disease with loss of teeth.

Unless professional treatment is obtained in time, the disease will progress and gradually destroy the bone structure supporting the teeth.

Malocclusion is the improper meeting of the teeth due to crowding, overlapping or other mispositioning of teeth. This condition is often so severe that chewing is difficult or impossible. If untreated, it could affect the development of the face and jaws, give speech difficulties, hinder digestion, and impair the overall facial appearance.

Early loss of baby teeth and the first permanent molars, hastened by the development of caries, are a major cause of

DEMONSTRATION — A dentist's assistant shows the proper way to brush your teeth.

malocclusion. The space left between the teeth by tooth loss often is partially or completely filled by the "drifting" or tipping of neighboring teeth into the empty space. This may present difficulties when new teeth are ready to emerge in place of the missing "baby" teeth or in occlusion - the meeting of upper and lower teeth.

Oral neoplasms are the growth of abnormal tissues in the mouth. Many such growths are benign and not dangerous to health. Others may be, or may become malignant and fatal if neglected. Oral facial defects may occur as congenital defects in such cases as cleft palate - a fissure of the roof of the mouth and the floor of the nose. Treatment and rehabilitation are complex and require the skills of a multi-disciplinal team, including a dentist.

Dental Diseases' Effects on You

If you have a bad tooth and are conscious of it, you probably are in pain. If you bite down on a hard object, the tooth hurts. You are in misery. Your tooth also may be sensitive when it comes in contact with cold or hot substances. It also may respond to touch and pressure. This pain usually occurs when the nerve endings in the dental pulp of the tooth are exposed or irritated.

***FRUITS AND VEGETABLES** — Your diet should include vegetables and fruits as they are good sources of phosphorus and other minerals and nutrients. Citrus is an excellent source of Vitamin C.*

You don't feel well. Your attitude toward yourself, other people — and life in general — may be affected by your toothache. There are also other effects of diseased teeth and gums.

Bad teeth can cause a misshapen jaw and face. Because of poorly chewed foods, the digestive system may be upset. There

have been several cases of "cafe coronaries" in Florida which were related to dental problems. These were called "heart attacks" because the attending physicians first diagnosed them as such. In reality, these cases occurred because people with dentures died after they failed to chew steak thoroughly before attempting to swallow it and large pieces of the meat were caught in their throats.

Decaying teeth can cause an offensive odor to be emitted from the mouth. In general, an infected tooth can cause a swelling of the face and affect the general health system of the individual. Because badly abscessed teeth drain into the lymph glands of the throat, infected teeth have a side effect on many parts of the body.

Control of Plaque

The control of plaque and dental diseases begins at home with a correct attitude toward dental care. Dental care should not be postponed. The most beneficial care should be started by parents when their children are still very young. If the children are properly taught and motivated, they are likely to continue the care throughout their lives.

Dental caries and periodontal diseases can be controlled through eradication of bacterial plaque, fluoride applications, proper nutrition, and fluoridation of the community water supplies.

Home care of the teeth should begin with instruction by the dentist or dental hygienist. They frequently use a solution, wafer or tablet made of harmless vegetable dyes to show where the plaque has built up on the surface of teeth. The proper brushing techniques will remove most of the plaque and its destructive bacteria from the teeth. The more vigorous brushing techniques demand toothbrushes with soft bristles.

Diligent, regular toothbrushing is important, especially after meals. However, the teeth should be brushed just before retiring for the night, since bacteria will continue to produce acids from food debris left from late-night snacks — unless it is removed.

A toothbrush with two or three rows of soft-texture, rounded-end bristles with six tufts in each row is frequently recommended by dentists. Your dentist or dental hygienist will demonstrate the various strokes necessary to remove the plaque. The necessary thing is to move the plaque to places where it can be washed away.

But brushing alone does not remove all of the plaque. The toothbrush cannot clean the spaces between the teeth which are built-in sanctuaries for plaque and debris. These can only be removed with dental floss. The floss should be held taut between the index fingers and guided gently between the lower teeth. It should be kept against the surface of the tooth as it is moved under the gum until resistance is felt without discomfort. The floss then should be moved away from the gum with a scraping motion. When flossing the upper teeth, it is best to wrap the floss around the thumb and index finger.

Interdental stimulators can be used to massage the tissues between the teeth and help reduce edema (an abnormal collection of fluids in the tissues). However, these must be used carefully. The fingers may also be substituted for the stimulators.

There are other home cleaning devices. Water sprays remove some bacteria and food debris but do not remove the plaque efficiently. These should not be used as primary therapeutic instruments. Special devices are on the market to handle special situations. These include devices to hold dental floss, bridge cleaners — which allow floss to be easily threaded and placed between artificial teeth on a bridge, and special brushes to reach into awkward places.

Going to the Dentist

There is much you can do to prevent dental diseases with home care. But periodical professional treatment is often required to inspect and clean your teeth and start any preventive measures necessary, such as fluoride applications, and fillings.

Periodical visits are necessary so that the dentist can determine the individual's progress with his home care and keep a watchful eye on the situation that may need attention.

Many defects of the teeth and surrouding tissues cannot be seen by a dentist during a visual inspection. Only x rays can reveal the condition of the hidden parts of the teeth and bones of the mouth. These x rays provide a history of a person's teeth and help the dentist see changes in the teeth, bones and gums that may indicate a diseased condition or other difficulty.

***HIDDEN PARTS** — X rays can reveal the condition of hidden parts of the teeth and bone structure. They also supply the dentist with a knowledge of the changes in your teeth.*

During the cleaning process, the dentist or dental hygienist will remove all foreign material from the teeth, especially the calculus.

The dentist also gives children's teeth topical fluoride treatments to reduce dental caries. Newly erupted teeth respond more readily to topical fluoride applications than older teeth and therefore this treatment should be given routinely between the ages of two and 12.

Two years is a good age for a child to be examined by a dentist and started on a regular schedule of care. The routine should not

begin later than three years of age. The child who visits a dentist before any frightening or painful oral problems develop is likely to have a positive attitude toward future visits. Dental care at this early age involves the parents. A child of two or three years cannot be expected to brush his teeth effectively. Thus, it is necessary that both the youngster and his parents be aware of the value of preventive dental care.

Prevention by Diet

While dentists can provide you with the best dental care in the world, they cannot go home with you to supervise your choice of foods. We, as public health officials, would like to remove all of the measles or diphtheria viruses in the world to protect you. We can't. So we vaccinate you against these diseases.

It is the same way with teeth. Removing all of the plaque is desirable. But it is not possible to remove from your mouth all of the bacteria that cause plaque. Some germs remain and the plaque forms again. Therefore, it is important for you, the host, to increase resistance to the growth of bacteria through proper selection of the foods you eat. Perhaps you know some people who brush thoroughly and still have dental problems. You may also know some people who don't brush well and don't have such problems. One of the factors in oral health is a person's resistance. However, nutrition as a part of oral health is largely a "do-it-yourself" thing.

The U. S. Department of Agriculture says that the average American consumes 115 pounds of sugar annually. It also says that half of American households have meals deficient in calcium, Vitamin A and Vitamin C.

Many dental authorities say that sugar which sticks to the teeth serves as material that support growth of bacteria. Foods sweetened with sucrose cause the most harm. Bacteria can metabolize this sucrose into damaging acids in minutes and it is in this environment that the bacteria really thrive.

The diet for good oral health is a nutritionally adequate diet but low in concentrated sweets. It should include meats, poultry, fish and dried beans and peas; milk and milk products; whole grain cereals or enriched breads and cereals; and fruits and vegetables every day. The diet can be tailored to the needs of the

CLEANING — A dentist cleans and polishes a boy's teeth in a public health dental clinic.

individual and should be consistent with those approved by the physician, dentist and nutritionist.

Calcium and phosphorus are important to tooth development. Calcium in the diet comes from milk, dairy products and green leafy vegetables. Whole grain cereals, dried beans, peas, vegetables and fruits are good sources of phosphorus.

If dental caries are rampant, sugar in the diet must be severely limited, but a basic nutritious diet must still be maintained.

History of Fluoridation

As we have said dental diseases are the most widespread of all diseases. Each year sees an enormous toll taken in terms of decayed teeth, toothaches, lost teeth and poor oral health.

Many Floridians do not see a dentist from one year's end to the next. One way of partially counteracting this lack of preventive dentistry is the use of fluorides in drinking water.

The history of fluoridation in the United States began in the early 1900's when Colorado dentists noted that the people of the Rocky Mountain areas had brown-stained teeth. They also noted that these stained teeth seemed to have less decay than normal teeth. By the 1930's, dentists recognized that the teeth of people from these areas with natural fluoridated water really did have increased resistance to dental decay. This fact has been thoroughly and repeatedly confirmed.

People who use water containing the optimal level of 1.0 part per million of fluoride from infancy to the age of 10 or 12 have significantly fewer dental caries in their permanent teeth. Studies carried out in 1945 and 1946 in the United States and Canada showed a 55 to 60 percent reduction in the number of decayed, missing, or filled permanent teeth of children exposed to fluoridated water from birth.

Fluoridated water has its greatest effect on the permanent teeth prior to their eruption into the mouth. The anticariogenic

***FLUORIDE TREATMENT** — A dentist completes a topical fluoride treatment by removing an applicator "tray" from the patient's mouth.*

(anti-decaying) effects of natural fluoridation continues well into middle age when tooth loss from periodontal diseases becomes important.

The safety of fluoride has been demonstrated by examination of people who have lived all of their lives in areas of the United States with high fluoride content in the water supply. There were no differences in disease morbidity and mortality in these areas than in areas with a low level of fluoride. Studies with animals and humans have shown that fluoride is constantly present in blood and tissues. The body has efficient mechanism for regulating and controlling the fluoride content of body fluids by storage of fluorides in the bones and excretion of excess fluoride in the urine and feces.

Fluoridation of a community water supply for the purpose of improved dental health was first initiated at Grand Rapids, Michigan, in 1945. Since then, some 4,000 other American communities have adopted this important public health measure. In addition, a number of states, including Connecticut, Minnesota, Illinois, Delaware, Michigan, South Dakota, Ohio, Georgia and Nebraska, have laws requiring communities to fluoridate their water supplies.

Eighty - six million Americans use water where fluoride contents are controlled. Another nine million individuals reside in areas that have naturally fluoridated water.

Fluoridation in Florida

Gainesville was the first community in Florida to fluoridate its water supply. This was in 1949. Since then 19 other public water supplies have started to provide drinking water with controlled fluoride content to over 60 Florida cities, towns and military bases with a population of over 1.3 million. An additional 25 communities, with populations in excess of 673,000, have naturally fluoridated water.

Efforts have been made over the years by many public health and voluntary health agencies and organizations and professional, labor, medical and business groups to enact legislation to supply all of Florida citizens with fluoridated community water supplies.

A bill has been filed with the Florida State Legislature for the coming session which will provide certain standards for the adjusting of the fluoride content of public water supplies. This proposal is made because the natural fluorides, which are already present in the water of many areas, are such insufficient concentrations that they are of little benefit to the public health of the citizens.

The bill calls for the Department of Health and Rehabilitative Services to conduct a study of the average natural fluoride ion content of the water from public water supply sources. It will then establish a range of acceptable fluoride content necessary for the protection of dental health of the people using those public water supplies. The fluoride content of the public water supplies would then be adjusted to comply with the requirements prescribed by the Department, and within the limits set by dental and medical authorities.

Public Health Programs

The Division of Health not only promotes the fluoridation of community water supplies, it promotes public health dentistry through a number of programs, dental clinics, and consultative services.

Thirty-four county health departments have 54 equipped dental clinics, some of which lack staffs necessary to give dental services. There are, at present, 28 full-time public health dentists working in these county health departments. Thirty-three county health departments are without dental space and equipment and have no dental programs.

Public health dentists give emergency, preventive and routine therapeutic services to indigent preschoolers, schoolchildren and maternity patients. During 1972, over 45,000 dental inspections were made; 77,666 fillings were placed; 38,922 teeth were extracted; and 13,679 topical applications of fluoride were made.

Through the Bureau of Dental Health, the Division of Health recruits dentists, dental hygienists, and dental assistants for the county health departments' dental programs. In addition, it assists in assessing opportunities for private dental practices in areas which have no dentists.

Through the county health departments, the Division of Health promotes the prevention of dental caries through

* school fluoride mouthrinse programs; and
* topical fluoride applications within county health departments' dental programs.

Diagnostic services include

* dental inspections and consultations with parents of preschool and school-children.
* referrals of children to private dentists to assure that they have dental care.

Dental health consultants provide liaison between the Division of Health and those county health departments that have active dental programs. They keep county health officers, public health dentists and private dental practitioners informed of state programs and urge them to have high quality dental services. In those county health departments with inactive dental programs,

SETTING UP APPOINTMENTS — A clerk in the public health dentist's office makes appointments for patients' visits to the clinic.

the consultants encourage the county health officers to implement the minimum dental health program. This includes corrective dentistry, particularly for children; supplemental fluoride programs, such as fluoride mouthrinses; promotion of fluoridation of community water supplies and emergency referral system to relieve suffering from dental disease and tooth loss, and implementation of Title XIX — the Medicaid early screening, diagnosis and treatment program for children of welfare families. Under this latter program, dentists in private practice are solicited to provide screening in 24 counties. In those counties which do not have dentists, Division of Health dental consultants are available to assist with this screening service.

The Division of Health laboratories have a service available to private dental practitioners in which saliva of their patients can be analyzed for **Lactobacillus acidophilus,** an analysis which indicates the level of dental caries activity. When this level is high, a low carbohydrate diet is often prescribed. The laboratories analyzed over 1,400 specimens in 1972.

Dental services and education vary from county to county. A dental trailer will soon be operated by the Pinellas County Health Department to provide dental care for elderly people. The trailer will be provided through the cooperation of a federal agency, the Division of Aging and the Division of Family Services of the Florida Department of Health and Rehabilitative Services, the Division of Health and the local health department. The trailer will be set in a neighborhood where elderly people live to provide them with dental services.

Dental Education

The Division of Health's efforts at dental education are designed to provide the latest information to as many people as possible. Public health dentists and many private dental practitioners conduct programs in facilities ranging from elementary schools to universities where schoolchildren, students, parents, teachers and other health workers are given dental instruction.

In addition, other educational material — pamphlets, motion pictures and other audio-visual aids — are used in teaching school-

children and adult groups. Teachers are trained in dental health through workshops, seminars, personal contact and participation in classroom instruction.

One county health department is in the midst of a plaque control program in which third grade students of 64 elementary schools, and students from kindergarten through sixth grade in six others, will be given instruction on how to brush and floss their teeth. This program was started by the local dental society by cooperating dentists, dental hygienists, and wives of dentists who will train teachers to supervise the children's brushing in school. The county health department is also hiring a dental hygienist to work with the teachers.

The Division of Health has initiated a state-wide fluoride mouthrinse program. Efforts are especially concentrated in areas with less than 0.5 parts per million of natural fluoride in the community water supplies. Some 15 counties and their school systems are participating in total or in part in this program which is being financed by local contributions.

In addition, the Division of Health has been awarded a three-year grant to test the efficacy of an amine fluoride mouthrinse and dentifrice on dental plaque and gingivitis (inflammation of the gums) when used alone or combined and compared with an inorganic mouthrinse and dentifrice. Approximately 2,000 schoolchildren in the sixth grade of a non-fluoridated area in West Florida will participate in these tests.

You, Oral Health and Fluoridation

Your teeth are an important part of you, your life and your well-being. If they are attractive, they add much to your smile. But some people are afraid to smile because their teeth are ugly. Good teeth add much to your life. They are the results of good oral hygiene, proper nutrition and regular professional dental care.

Good oral health requires the removal of dental plaque and the prevention of periodontal diseases. This requires correct toothbrushing and flossing technique. And this means proper

motivation and good habits. You cannot take your dentist home with you to see that you clean your teeth properly, so you must learn the correct procedures during visits to your dentist's office.

Because there is a tremendous backlog of dental disease in Florida, there is no way of repairing all of the damage to gingival tissues and replacing lost teeth in the existing generations. Children who are just starting life with good oral health need to be protected from dental disease. You can help the oral health of your community by seeing your dentist at regular intervals, observing good nutrition, brushing and flossing your teeth to remove plaque, and supporting efforts to fluoridate the water supplies in your community.

FLOSSING TEETH — ***A dental assistant demonstrates the correct way to floss the upper teeth.***

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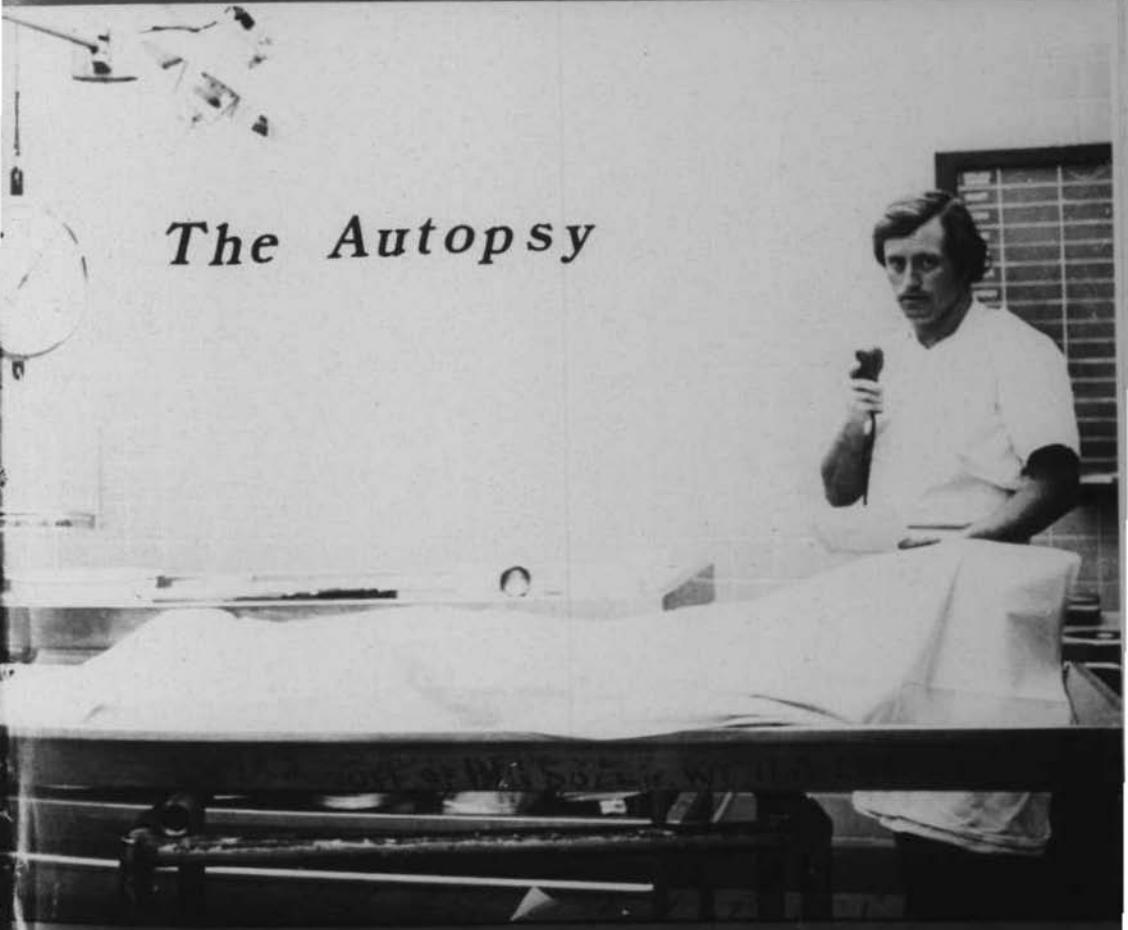

The MEDICAL EXAMINERS

The MEDICAL EXAMINERS

The frantic ringing of the doorbell and hurried steps on the stairs of 122B Baker Street, London, usually introduces Sherlock Holmes, the master detective, to new adventures in crime detection.

A chemist by training, Holmes was familiar with toxicology (as demonstrated in **A Study in Scarlet** - for he recognized death by poisoning by smelling the victim's lips), the properties of chloroform ("The Gold Hunter"), the detection of powder burns from a gunshot ("The Reigate Puzzle"). He could tell differences in soils and cigar ashes at a glance and was familiar with tropical diseases ("The Adventures of the Dying Detective").

Sherlock Holmes was the creation of Sir Arthur Conan Doyle. The adventures of this 19th Century fictitious character were enjoyed by millions of readers around the world. There has been little doubt that the influence of Holmes and Conan Doyle was widespread in European and Asiatic criminology. Sir Arthur (through Holmes) invented plaster of Paris casts for preserving delicate clues and the examination of dust from a man's clothing to establish his profession or habitual whereabouts.

But Holmes' adventures are no less fascinating than the work of Florida's medical examiners. Like Holmes, these men must use a smattering of imagination, an open mind and knowledge of physiology, pathology, chemistry, toxicology, physics, anatomy, biology and a number of other sciences.

The medical examiner is an investigative arm of government whose basic purpose is to acquire any information pertaining to a sudden, unexpected, violent death, or one which is a potential public health hazard, or has an indication of a public interest. Basically, the medical examiner is concerned with any death which can conceivably have social and health problems. Ninety percent of the deaths which come under the medical examiner's jurisdiction and require investigation are not of public interest. This leaves only 10 percent which have potential interest for the courts and law enforcement officials.

THE AUTOPSY (Cover photo) - After completing an autopsy, a physician records his findings. This is just one part of an investigation into the cause of death. A recovered body (upper left) is transported to the medical examiner's office. Legal evidence from a number of homicide cases are exhibited by a medical examiner.

The medical examiners in Florida work with the advice and under the direction of a Commission which is administratively located in the Bureau of Adult Health and Chronic Diseases, Division of Health of the Department of Health and Rehabilitative Services.

This issue of **Florida Health Notes** will tell you about the medical examiners, their duties, the importance of their records, their relationships with the state attorney's offices, the law enforcement agencies and the Division of Health - which registers all death certificates. We will also tell you about the Medical Examiners Act, the Medical Examiners Commission and the role of the Division of Health in the medical examiners' program.

THE MEDICAL EXAMINERS

Like Sherlock Holmes, Florida's medical examiners are men of science. They are practicing pathologists who are appointed by the Governor for each Medical Examiner District in the state. The appointments are made upon the nomination of the Medical Examiners' Commission following the recommendations of the boards of county commissioners, state attorneys, law enforcement officials, and local physicians.

The medical examiners are responsible for investigating deaths of anyone who dies in the state from

* criminal violence;
* accidents;
* suicides; or when
* suddenly, when in apparent good health;
* unattended by a practicing physician or other recognized practitioner of the healing arts;
* in a prison or penal institution;
* in police custody; or of

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* a disease constituting a threat to the public health;
* disease, injury or toxic agent resulting from employment; or when
* a dead body is brought into the state without proper medical certification;
* a body is to be cremated, or buried at sea, or dissected.

The functions of the medical examiner are to carry out official, impartial medical investigations of death within his statutory jurisdiction, including determination of the cause and mode of death. Many previous and current systems have a common theme - the investigation of apparently criminally - caused deaths. The medical examiners of Florida should be concerned with death investigations on a broader theme - of public interest.

Many prosecutors and policemen are of the opinion that the medical examiner can go into an area, do an examination or an autopsy, determine the cause of death and anticipate all questions that may be raised in court. The medical examiner is then expected to testify in court in clear, precise terms and leave.

A medical examiner's report is dependent upon a total history of past events, the life and habits of the individual, an examination which may include an autopsy, and the testimony of witnesses. An autopsy is only part of the investigation and only serves as a positive or negative support of the examination which is a part of the overall investigation. The medical examiner should anticipate any future questions.

There was one medical examiner's case in which future questions were anticipated. An elderly man had fallen and struck his head on a soap dish. There was bleeding from an artery on the forehead, but the cut was less than one centimeter in dimension. There was anticipation that the wealthy businessman had a large insurance policy subject to a restricted clause on a heart condition. In view of his advanced age it was anticipated that he could have had a heart attack. A photograph of blood droplets on the wall of the bathroom showed that blood had spurted from the lacerated artery indicating that the cardiovascular system was working well after the receipt of the injury. The death was a result of the fall - not from a heart attack. An autopsy revealed organic heart disease but this was ruled not the cause of the death.

TRAGEDY - A policeman measures the skid marks following an accident. The medical examiner is frequently on the scene of many cases to start his preliminary investigations.

UNION OF MEDICINE AND THE LAW

Medicine probably has a history as ancient as man himself. In his search for food, early man must have tried substances that had medicinal qualities. By trial and error, he obtained knowledge of those which could be used to lessen pain and combat disease and of others which were capable of causing death. Such knowledge was handed down from generation to generation and as certain individuals became especially interested in matters of health, disease and cures, the man of medicine evolved. His knowledge of drugs, blended with a knowledge of simple surgical procedures and reinforced by magic and witchcraft, made him a powerful and influential member of society.

Similarly, the law may be said to be as old as society itself. When men began to live in groups, it soon became obvious that no member could be allowed to do just as he wished. Actions of all had to conform to certain rules if the group was to survive. It became evident that one caveman could not run off with another man's woman or kill another person without the group taking steps to protect itself. Sanctions had to be applied

to curb the antisocial inclinations of the few. Thus the law was born.

Legal, or forensic medicine, was not to be started until a stage of civilization had been reached in which there was a recognizable legal and medical system and an integrated body of medical knowledge and legal opinion. Furthermore, we could not know much about these matters until some means of recording them had been achieved. Our earliest recorded history goes back only about 5,000 years when writings of one sort or another appeared in several places about the same time.

Much information concerning the status of the law and medicine can be gleaned from the clay cuneiform tablets of Sumer and Babylon and the inscriptions on the monuments and papyri of ancient Egypt. These records show that there was a knowledge of medicine which was not only extensive but clearly systematized and which showed a much more scientific approach to medical problems than generally realized.

From the Edwin Smith Papyrus and Ebers Papyrus, from inscriptions on monuments and temples, and from the examinations of mummified remains, it is possible to draw valid conclusions regarding Egyptian law and medicine from as early as 3,000 B. C.

There was a definite system of law relating not only to crime, but also to property, marriage, and many other civil matters. The prescribed punishments for crime included corporal chastisement and mutilations - such as cutting off the ears, nose, hands or feet. In certain cases, the convicted persons were thrown to the crocodiles, but the most frequent punishment of all, at least during certain eras, was to put the culprit to forced labor for long periods. Hence the Egyptian pyramids were built.

There is little indication of any particular medicolegal practice, but Plutarch states that the Egyptian law ascribed to Menes ordained that no pregnant woman was to be punished. Pliny (a Roman writer of 23 — 79 A.D.) tells us that the bodies of those who died were examined to ascertain the cause of death. We also know that a fairly extensive knowledge of toxicology was required of those entitled to practice medicine in Egypt.

The Hammurabi Code of Babylon, inscribed on stone about 2,000 B.C., is possibly the oldest written Code of Law in existence.

The Code set severe penalties for quackery. Malpractice by surgeons could result in a fine, the loss of a hand, or the life of an unskilled physician. The earliest record of a murder trial has been found in Sumeria on a clay tablet dating back to 1,850 B.C.

To the Greeks we owe a great deal for placing medicine on a more rational basis, largely due to the scientific outlook and methods of Hippocrates. Not only were there a great emancipation and development in medicine in ancient Greece, there was also a remarkable development in the field of jurisprudence. The Greek Legal Code, especially as regarding criminal procedures, was full and elaborate. There is no clear evidence that medical knowledge was officially made use of in establishing proof in courts of law, but Hippocrates and others discussed many medicolegal questions, such as relative fatality of wounds in different parts of the body, the possibility of superfetation (fertilization of an ovum during a pregnancy already in existence), the average duration of pregnancy, the stage of development at which premature babies could live, the pretense of being ill to escape punishment, and many other matters which must have repeatedly been issues in the courts. In view of the high standing the physicians had in ancient Greece, it is hard to believe that their opinions were disregarded by a legal system which was equally anxious to maintain its high esteem.

Roman legislation was based on the Greek model, but was much more advanced. During the Roman Empire, there was considerable progress in medicine, but there is no reason to believe that the law made any greater systematic use of the medical knowledge than did the Greeks.

Some cases of medical evidence have been frequently quoted. For example, the body of Julius Caesar, assassinated in the Senate in 44 B.C., was examined by the physician, Antistius, who pronounced that of the 23 wounds sustained, only the one which penetrated the chest was of a fatal nature.

The Justinian Code, which appeared between 529 and 564 A.D., used medical experts in determining a variety of legal problems. These included the existence of pregnancy, cases involving sterility, impotency or legitimacy; cases of rape, poisonings, survivorship; and in cases complicated by the question of mental disease.

During the thousand years which followed the fall of the Roman Empire, there was a general stagnation in the fields of medicine, science, and general culture. Forensic medicine was equally neglected. However, there were some vague attempts to formulate the principles of medical jurisprudence during the Middle Ages. The earliest of these were the laws of the Germanic and Slavic tribes, the Salic Laws of the Franks, the Capitularies (ecclesiastical canons of Charlemagne in the 9th Century), the Assizes of the Crusaders, and in the 13th Century, the decrees of the popes and general canon laws.

The procedures in such cases were often the crudest kind. The test may have been by ordeal, torture, de facto certification of impotence, and "cruentation" - the spontaneous bleeding of a corpse in the presence of the true murderer. The expert opinions given were usually in the nature of hair-splitting, but historians cite cases of French legal procedures of the 14th Century in which surgeons were commonly consulted in cases of wounds, homicides, rape and the like.

MODERN MEDICAL JURISPRUDENCE

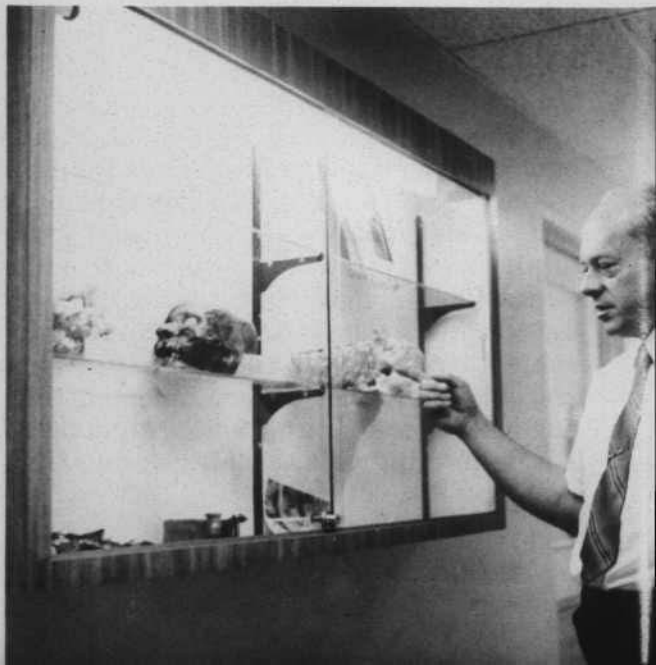
In 1533, the Caroline Code, published and proclaimed by Emperor Charles V of France, laid down for the first time, the fact that expert medical testimony must be obtained for the guidance of judges in cases of murder, woundings, poisonings, hangings, drownings, infanticides, abortions and other circumstances involving the person. Physicians of the time played their part in the development of a saner, healthier outlook on such matters than trial by ordeal or some other medieval travesty.

The teaching and pursuit of legal medicine had a greater development in Europe than in the English-speaking countries, where its pursuit was handicapped by the lack of official contact of medical schools with legal authorities and the neglect (until recent years) of the latter to utilize and evaluate the expert medical knowledge required in the field. In many European universities, large independent institutions were devoted to this subject, equipped with special histological, bacteriological, chemical, hematological and radiological laboratories, and not only engaged in teaching and investigation of medical jurisprudence, but performing valuable official duties for the state.

Medical jurisprudence first started in Scotland and England in the 1700's under the direction of a number of noted physicians, especially the father - son team of Andrew Duncan, first and second, who conducted a series of lectures at the University of Edinburgh between 1789 and 1819.

Forensic medicine in the United States derived much of its inspiration from Great Britain. During the early 1800's, Dr. James S. Stringham of New York City, Dr. Benjamin Rush and others who had been influenced by the teachings of the Duncans, started courses in medical jurisprudence in American medical schools. Over the years, various medical schools have added forensic medicine and the scientific investigations of crime and criminal conduct to their curriculums.

The Medico-Legal Society of New York was founded in 1867 to give that state the pioneer status in medical - legal progress. But Massachusetts was the first to abolish the office of coroner (1877) and replace it with the medical examiner system. This was not followed elsewhere in the United States until the 20th Century. In addition to the development of medical examiner systems, there has been considerable development in recent years in the use of laboratories in medico-legal investigations by the Federal Bureau of Investigation, and many state and municipal police departments.



ARTIFACTS - A medical examiner's office is a storehouse of evidence on death. This display case contains skulls and other artifacts of homicides and unusual deaths.

FLORIDA'S MEDICAL EXAMINER LAW

Until 1970, Florida had a mixture of coroner and medical examiner systems in which the prosecuting attorney frequently stood between the coroner or examiner and the cases needing to be investigated.

In those counties which had medical examiners, only the prosecuting attorney could order an investigation or autopsy. There were oftentimes no investigations of overdoses of medicine, alcoholic deaths and highway accidents.

In one county, a woman had been admitted to the hospital with suspected abdominal cancer. She fell from her hospital bed and fractured a hip - which was surgically repaired. But the woman died without leaving the hospital. The attending physician could not assign a cause of death without an autopsy so he asked the medical examiner to do one. Consequently, the medical examiner performed the autopsy and because he had not requested prior permission from the prosecuting attorney, he was sued by a surviving son. The court directed a verdict in favor of the defendant. The Court of Appeals reviewed the case and recommended a new trial. The Florida Supreme Court also affirmed the granting of a new trial.

The Florida Medical Examiner Law (Chapter 406, **Florida Statutes**) which was passed in 1970, has five basic components:

* A clear definition of those deaths which should be examined because there may be a reasonable, potential question raised in the future by the public, other governmental agencies, civil or criminal courts. This includes insurance companies. Deaths included those arising from accidents, suicides, homicides, industrial injuries, jail deaths, and public health hazards.

* Specific individuals are made responsible for determining the cause of death. This is the medical examiner, not the prosecuting attorney.

* The medical examiner has the investigative authority equal to his responsibilities, which means he has control as to the dead body, is able to investigate at the scene, and controls the decision on the performance of the autopsy to determine the cause of death.

* A system of direct notification to the medical examiner of the death. This rests upon the person who had direct knowledge of the death and the information is passed on to the medical examiner without the interference of a third party.

* The means of obtaining a temporary medical examiner's service in event the medical examiner fails to investigate or is not available. In Florida, the continuance is in the hands of the state attorney or county solicitor.

When the Florida Medical Examiner Law was under consideration, there was some question as to where to place the system. The problem was to build a system which had considerable local input (if it were to be an effective medical examiner system) and state level responsibility (to assure equal coverage in areas which were varied in population, economy and ability to give financial support to such a system).

After considering a number of state agencies (the Governor's Office, Attorney General's Office, and the Department of Law Enforcement), the Legislature decided to place it in the Division of Health of the Department of Health and Rehabilitative Services. This agency would be responsible for administratively coordinating the medical examiners' system.

The law sets requirements and/or authorization for

* the Medical Examiner's Commission, composed of six members;
* promulgation of rules and regulations;
* the creation of districts;
* district medical examiners and associates;
* compensations for services;
* payments for salaries and expenses;
* payments for witness' fees;
* autopsy facilities;
* types of deaths to be investigated;
* duties of citizens to report such deaths and prohibit acts which will alter the evidence or circumstances surrounding the death;
* examiners' reports and maintenance of records;
* duty of law enforcement officers;
* designation of substitutes in absence of official examiner;

* professional liability insurance; and
* application and construction of the chapter of the Statute.

More will be said about some of the parts of this law later in this issue of **Florida Health Notes.**

THE MEDICAL EXAMINERS' COMMISSION

The Medical Examiners' Commission is composed of two physicians actively engaged in pathology; a funeral director; a state attorney; the executive director of the Department of Law Enforcement or his designated representative; and the attorney general or his representative. The terms of office are for four years. In case an elected official resigns or leaves office, the appointment will terminate. Members of the Commission may also serve as district medical examiners if qualified.

The Commission will promulgate rules and regulations which will insure uniform standards of medical examiners throughout the state, performance of duties, and maintenance of records to provide useful and adequate information to the state regarding factors in unnatural deaths.

ACCIDENTAL DEATHS — The medical examiner will receive the bodies of individuals involved in this automobile-train crash.

Members of the Medical Examiners' Commission who are appointed by the Secretary of the Department of Health and Rehabilitative Services are:

Joseph H. Davis, M. D., Dade County Medical Examiner, Miami

Herbert P. Sapp, Jr., Representative of Attorney General's Office, Panama City

Donald L. Howie, M. D., Patterson-Coleman Laboratory, Tampa

Edward Miller, Department of Law Enforcement, Tallahassee

Reid H. Lowe, Reid - Lowe Funeral Homes, Miami

Hon. Leo Jones, State Attorney, 14th Judicial Circuit, Panama City

To carry out the work of the medical examiners, the Commission also sets up districts, taking into consideration the populations, judicial circuits, geographical size of the areas covered, availability of trained personnel, death statistics both natural and unnatural causes and similar related factors.

The Commission is to meet at least four times a year, but currently it is meeting more frequently because of the work involved in putting the law into operation and setting up rules and regulations.

A survey made in the late 1960's revealed that the state had a distribution of pathologists, most of whom were working in various areas of the state. To implement the medical examiner district system, the law provided that practicing pathologists who were already engaged in private practice could be named as district medical examiners, providing their practice did not interfere with their official duties. They have the authority to appoint other physicians as associate medical examiners as necessary to provide service to the people of Florida at all times and in all places within their districts.

A CASE FOR THE MEDICAL EXAMINER

Sherlock Holmes was known as the "most perfect reasoning and observing machine the world has ever seen." This observation was made by Dr. Watson, Holmes' companion, in "A Scandal

in Bohemia." Through a myriad of cases involving murder by gulliotine, tarantula, dagger, pistol, drugs and chloroform, robberies, attempted murders, disappearances and various chicaneries practiced by mankind, Holmes managed to solve them by imagination, observation and deductive reasoning.

"Never trust to general impressions, my boy, but concentrate yourself upon the details," Holmes remarked to Watson; "You know my method. It is founded upon the observation of trifles."

A medical examiner has to have much of the Sherlock Holmes touch. He must visit the scene of the homicides, suicides and accidents. He must be able to deduct from evidence found at the scene and his laboratory findings the cause of death. Where the Holmesian theory was to make general deductions from minute details, the medical examiner frequently must survey a broad scope of the overall death scene and sift out the unrelated facts to find out the cause of death.

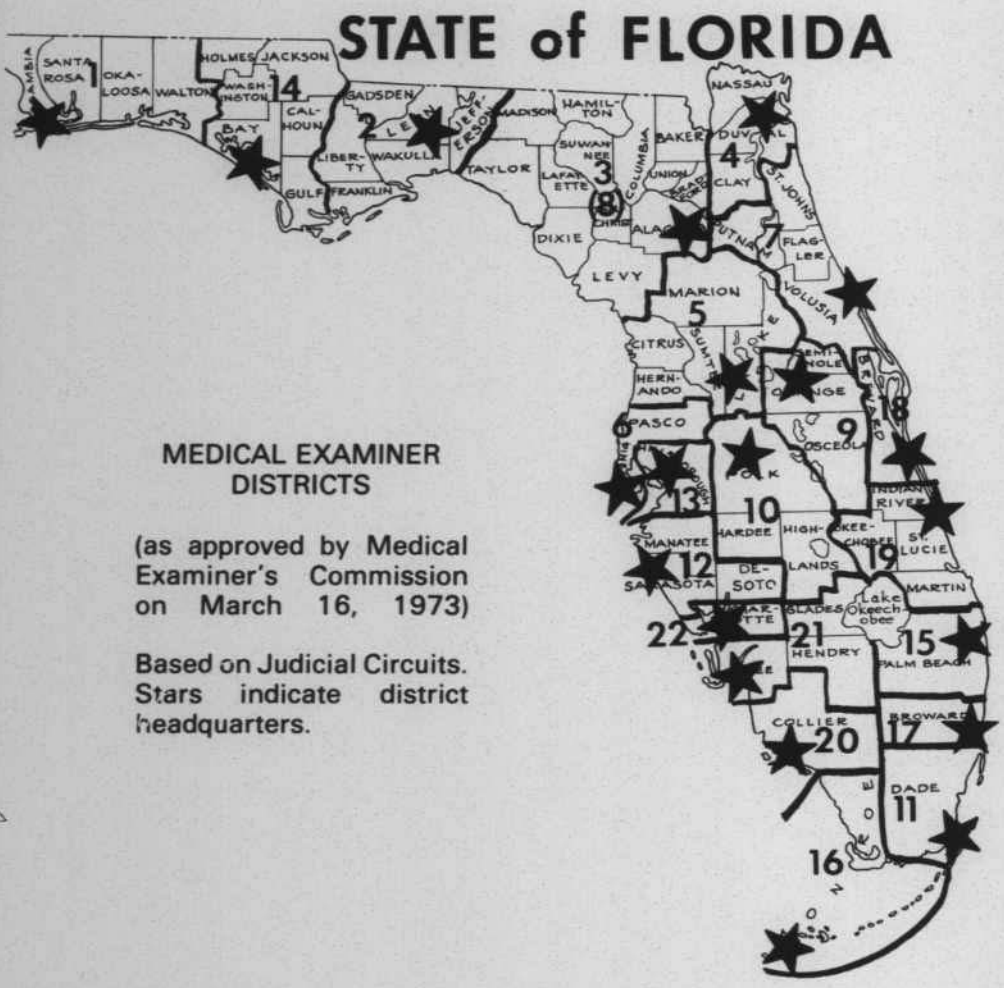
There were some 83,000 deaths in Florida in 1972. Of these approximately 30 percent, or 24,000, were such that they had to be reported to the medical examiner. About 60 percent of these were called medical examiners' cases. These included 6,825 reported cases of accidents - motor vehicles, homicides and suicides, and 203 deaths from undetermined causes.

The practicing medical examiner, in active investigation, is less effective the further he is removed from the scene of the death. Accordingly, the closer the medical examiner is to the scene, the better he is able to be informed from

* facts at the scene of the death (blood stains, footprints, weapons);
* from eye witnesses;
* from the agency involved (frequently the police);
* from the family (habits, relationships and customs of the individuals involved); and
* from the funeral director.

There are two things the medical examiner must keep in mind:

* how his evaluations correlate and fit in with the total facts of the case; and



MEDICAL EXAMINER DISTRICTS

(as approved by Medical Examiner's Commission on March 16, 1973)

Based on Judicial Circuits. Stars indicate district headquarters.

* anticipation of future inquiries. Will there be future questions asked about the cause of death and what can he do to truthfully and fully answer such questions before they arise?

To better carry out his work, the medical examiner needs a laboratory where tests can be made. He must be a "laboratory-oriented" physician with knowledge of toxicology. Though he is operating a hospital or private laboratory, there is no reason why

Florida's Medical Examiners

Florida's medical examiners (as of December 31, 1973), who are appointed by the Governor are:

District 1	Edmund R. Kielman, M. D. Shalimar	District 12	Millard A. White, M. D. Sarasota
District 2	Vacant	District 13	John R. Feegel, M. D. Tampa
District 3	Robert E. Klein, M. D. Gainesville	District 14	A. Ralph Monaco, M. D. Panama City
District 4	Peter Lipkovic, M. D. Jacksonville	District 15	Hugh Dortch, Jr., M.D. Palm Beach Shores
District 5	William H. Shutze, M. D. Leesburg	District 16	Adalberto F. Fernandez, M. D. Key West
District 6	John J. Shinner, M. D. Largo	District 17	Geoffrey T. Mann, M. D. Fort Lauderdale
District 7	Arthur Schwartz, M. D. Daytona Beach	District 18	Laudie E. McHenry, M. D. Melbourne
District 8	Combined with District 3	District 19	H. L. Schofield, M. D. Vero Beach
District 9	Thomas F. Hegert, M. D. Orlando	District 20	Heinrich O. E. Schmid, M. D. Naples
District 10	Eugene Mezger, M. D. Lakeland	District 21	Wallace M. Graves, Jr., M. D. Fort Myers
District 11	Joseph H. Davis, M. D. Miami	District 22	H. Ivan Brown, M. D. Port Charlotte

he cannot add the tests necessary for medical examiner's work. A laboratory which is serving living people can run tests for barbiturates, alcohol, stimulants, bile, urine, feces and other tests which are necessary in determining the cause of death. The medical examiner needs to know the parts of the body affected by drugs and he needs to test these organs immediately.

Time is important in the investigation and it is necessary that these tests be carried out quickly so the medical examiner

BUSY LABORATORY — The medical examiner's laboratory staff works long hours on tests that reveal substances which cause deaths.

can make his judgements as to which course of action he should take.

THE MEDICAL INVESTIGATION

The medical examiner enters the picture in cases where a person meets an unnatural death from a number of causes (see page 28 for list), or the death is unattended by a physician.

If the situation falls under **Florida Statute 406** and a medical investigation is indicated, the medical examiner, or an associate, will be notified by the law enforcement officer or other person. Appropriate information is also transmitted to the medical examiner who makes arrangements for delivery of the body and/or on-site examination of the body. The medical examiner is frequently called to the scene of the death to start his investigation - especially in cases of suspected homicide or accident.

An unattended death is one in which a person dies without a physician being in attendance during his last illness. In an attended death situation, the physician need not be present at the time of death, but there should be a relationship between

the last visit of the physician and the fatal illness. Conversely, a physician's presence at the death scene may not constitute a true attendance, if there had not been prior therapeutic relationship established between the physician and the individual.

One area of unattended deaths (or sudden death when in apparent good health) that needs further investigation is the sudden infant death syndrome, often called "crib deaths." These deaths which totaled 102 in 1973 in Florida, were those infants found dead in their cribs or beds from no apparent cause.

Rules and regulations being published by the Medical Examiners' Commission state that there should be no embalming or other preburial preparations in medical examiners' cases as these may obscure evidence or cover up toxicological evidence.

A man who complains of chest pains before he dies may have had a heart attack - but again he may not have had one. The pain could have occurred in any of the layers of tissues and organs in the chest and the death could have been from other causes. Heart disease in an individual is meaningless if it does not coincide with other facts and causes. Electrocution can resemble a heart attack.

Medical examiners have been studying fatalities from electrocution for some time and because of this, and other industrially - related accidents and diseases, have been promoting industrial safety. They used air pollution detection devices long before they were used by ecologists.

A 54 - year - old electrician on a ship at sea was found dead next to an electric drill. It was first thought the man had died of a heart attack. When the ship reached port two days later, the body and tool were turned over to the medical examiner's office. An autopsy of the man revealed an organic heart attack. The electric drill was examined. It checked out as being safe on the ohmmeter, but when taken apart, it was revealed to be a lethal weapon. The combination of damp salt air, a corroded switch, and a removed ground prong (so the male plug would fit a two-prong outlet) made it so.

Of the approximately 3,000 dead bodies received annually by the Dade County Medical Examiner's Office, only 2,000

are autopsied. Sometimes only a partial autopsy is necessary to determine the cause and circumstances of death. Or a complete autopsy, including laboratory and toxicological examinations may be necessary.

The 1,000 other bodies that are not autopsied are usually individuals who need not have been brought to the medical examiner's office. Because of **Florida Statute 406,** the medical examiner must sign the certificate of death where there was no attending physician. Following are two examples that did not require autopsies:

A man, who had a well-documented heart condition and was treated at a public health clinic, died at home unattended by

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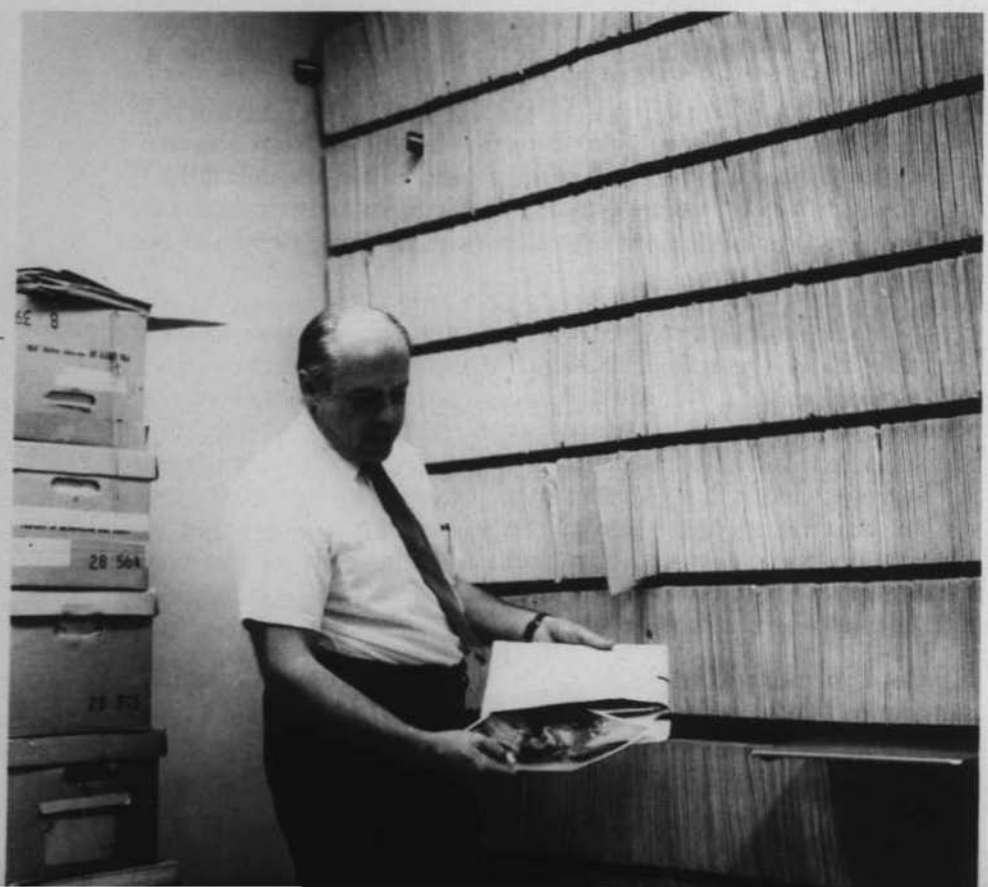
WALL OF RECORDS — The medical examiner's records and files often contain the most detailed information on various types of death. This information has been used by many people and groups, including the Florida Legislature.



a physician. Because the public health physician did not make house calls, the body was brought to the medical examiner's office where it was examined and the death certificate signed.

An elderly visitor from the north came to Florida for the winter season, carefully carrying his medical records and medicines. He had the misfortune to collapse in front of everyone in a hotel lobby. A medical emergency team was called, but the man died enroute to the hospital. The rescue squad took the body to the medical examiner who signed the death certificate and released the body to the family and local funeral director.

THE MEDICAL EXAMINER'S REPORTS AND FILES

Once the medical examiner has completed his work and finished his report, copies are sent to the state attorney or county solicitor's office and the law enforcement officials. The reports of medical examinations and autopsies can be released to individuals or agencies with a legitimate interest in the case. These include the immediate family, the public defender or defense attorney, law enforcement officials, the courts and insurance companies - when requested by the next-of-kin.

Specimens from autopsies are prepared, labeled, sealed and catalogued for future use as evidence in court hearings or trials. Clothing, bullets, scuba gear, and other physical evidence are turned over to the law enforcement investigators.

The medical examiner keeps a file on each case. Everything about that individual and the circumstances surrounding his death go into the file. It is hoped that this information will answer any question that may arise in the future: information about the disease (if one was involved), newspaper clippings, police reports, references to similar cases, family information - all facts about the deceased.

The medical examiner's files are important because frequently they are the only place where detailed information can be found on a wide range of causes of death. The State Legislature requires reasonable data to assess the needs for legislative reform or changes in laws. Information for legislative pur-

NEXT - OF - KIN — A member of the medical examiner's staff has to be skilled at locating the next - of - kin. Many transient people who die in Florida have no known ties to families or relatives.

poses has been gleaned from the files of the Medical Examiner's Office of Dade County for changes in laws on drugs, barbiturates, stimulants, and drunk driving.

The only data in depth to be found on alcoholic deaths in Florida are in the files of the Dade County Medical Examiner. Organized data from this source have been supplied for studies in deaths from electrical hazards, firearms, and fleeing drivers.

The medical examiner's office is frequently called upon by groups of opposite beliefs for data to bolster their theories. People who are organizing drug rehabilitation programs often use the medical examiner's files to justify their projects.

TRACING THE NEXT-OF-KIN

As a vacationland and resort area, Florida attracts millions of tourists and thousands of transient persons who have no known relatives or family ties. Frequently these persons are found dead in Skid Rows and ghettos, or on downtown streets

of Florida cities. Transients are also found in expensive hotels, motels and apartment houses. Many times the medical examiner's staff has to make many calls to other American cities or foreign countries to locate to next - of - kin of people who have died in Florida.

There is frequently a pattern to where people die. If a man dies on a downtown street or in a flop house, he is often an alcoholic or a narcotic addict and is usually known to a veteran's hospital, rescue mission, or the police. Drunken brawls with their resulting shootings and knifings usually occur in ghetto or tenderloin areas. A person who has false teeth, consumes much liquor and chokes on a piece of steak is usually wealthy and may live in the suburbs.

One young woman, who was reported to be about 25 years old, was found dead in a Miami Beach motel from an overdose of drugs. She had been a prostitute. Police found in her possession a little black book that included a list of names - evidently her customers. Unable to locate her next - of - kin, the medical examiner's staff started calling persons listed in the book. One happened to be an attorney who had handled an automobile accident for the girl. From the attorney, the medical examiner's office found that the girl had at one time worked in a 10 - cent store in a northern city.

A call to the store manager revealed that he knew the girl under a different name, that she had worked at the store, and he knew her sister who still lived in the north. The sister told the medical examiner's office that the girl was 16 and she thought her sister had returned to Miami to be with their parents - who resided only a few blocks from the medical examiner's office. The parents thought the girl was still living with her sister in the North and did not know that she had returned to the Miami area.

WORKING WITH THE POLICE

Where the medical examiner is to find the cause of death, the police have the responsibility of determining whether the death was accidental or of a criminal nature and - if a crime has been committed - of finding the suspect.

POLICE COOPERATION — The police work closely with the medical examiner to help him determine the cause of death. They are responsible for finding out if a crime has been committed.

Frequently, the police send the body to the medical examiner's morgue. Occasionally the medical examiner will receive a body which has indications that the person died of natural causes. But he may find traces of poison, a tiny hole under the arm caused by an ice pick, or some other cause of death that makes it a homicide; then the police enter the picture.

The police work closely with the medical examiner and state attorney who receive copies of their reports. In turn, the police get copies of the medical examiner's report.

Law enforcement officials say that most acts of violence occur between four o'clock in the afternoon and one o'clock in the morning. The worst kind of homicide is the felony murder - such as a robbery ending in the death of the victim. The most difficult to solve are those in which a person is killed by a stranger who flees leaving only the dead person. Crimes of passion are the simplest to investigate because the suspect often does not try to flee and he is usually known to witnesses.

Homicides are on the increase. By the middle of November, 1973, 115 homicides had occurred in Jacksonville - Duval County- as compared with 113 in all of 1972.

The police blame the rise in homicides partly on the increase in drug traffic. An individual high on drugs will shoot and will not care that he has killed some one.

In helping the medical examiner to determine his findings, the police rely heavily on eye witnesses and such physical evidence as bullets, guns, knives, suicide notes, or bottles of poison. Two problems are finding witnesses, particularly in minority neighborhoods, and getting them to talk. Too often they blend in with the crowd that gathers.

Not only are the homicide squads concerned with deaths of a violent nature, they also investigate cases of rape, kidnaping and all crimes against persons, except robberies. In more serious cases of homicide, the medical examiner will go to the scene to carry out preliminary investigations that will help lead to his determination of the cause of death. One good aspect of the medical examiner's work, according to police, is that he can often recover material, such as bullets, for legal evidence.

WORKING WITH THE STATE ATTORNEY

The work of the medical examiner is crucial to that of the state attorney: to investigate homicides, suicides, accidental deaths and to protect the innocent as well as to condemn the guilty.

Where the medical examiner finds the cause of death of an individual and the police determine whether or not a crime has been committed and who is a suspect, the state attorney's office determines whether or not criminal charges should be brought against the suspect. One man may be arrested for the suspected killing of another individual. Should the autopsy and the medical examiner's report, plus other facts, show that the man died of a heart attack, the suspect would be released. Thus, the medical examiner's report helps exonerate the innocent as well as condemn the guilty.

STATE ATTORNEY — The state attorney's office receives a copy of the medical examiner's report and makes the decision as to whether or not to bring the case to trial.

Upon receiving the medical examiner's report, the state attorney, should he determine a crime has been committed, can file the case directly with the court and proceed to trial - unless he is asking for a first degree murder charge. Then the case must be submitted to the grand jury and enough witnesses called to support the case.

The state attorney's office uses the expert opinion of the medical examiner on the witness stand, who testifies as to his expertise, training, education and experience. He states that he performed an examination to include an autopsy and puts into the court records the results of the autopsy and medical cause of death, as well as noting other marks or abrasions on the body. Because of his many years of training and experience as a pathologist, the jury listens closely to this evidence.

Under the old county coroner system an inquiry was usually held as to whether a citizen died of natural causes or of other factors involving murder. This was not so much to determine

the cause of death because sometimes the inquest was held several days after the death, but to determine whether a crime had been committed. Unlike the medical examiner, the coroner system was not capable of ascertaining definitive aspects of the causes of death.

The state attorney's office works closely on a day-to-day basis with the medical examiner. For this reason, the medical examiner district, in most instances, coexists with the judicial circuit of the state attorney.

THE DEATH CERTIFICATE

The death certificate is usually the final official paper made out on an individual. Because death is no longer a private affair, such certificates are filed in the county where the death occurred - or where the dead body was found - and then forwarded to the State Registrar at the Division of Health's headquarters in Jacksonville.

One basic reason for the medical examiner system is to develop more accurate public health statistics and obtain information on what disease was involved or the cause of death. "Truth in death reporting" is one aim of the medical examiner system. Before the Medical Examiner Act was passed, some 15 counties had medical examiner laws but a number of posts were not filled. The laws varied from county to county and sometimes funeral directors had difficulty in completing death certificates. The effect of the 1970 law is to give uniform reporting.

The wording of the cause of death on a certificate is important. The medical examiner must state the cause of death in a minimum of words. He must remember

* the physician who is interested in the mechanisms of death;
* the civil courts, insurance companies and beneficiaries who are interested in filing claims and the cause of death;
* the criminal courts, which are interested in whether a crime has been committed; and,

* the coding clerks of the Division of Health's Bureau of Vital Statistics who code the death certificates according to specific World Health Organization's nomenclature regulations.

THE COST OF MEDICAL EXAMINERS

The Division of Health, through its Bureau of Adult Health and Chronic Diseases, provides the Medical Examiner's Commission with the staff and administrative assistance necessary to implement the law.

Some money for the work of the Commission is provided by the State Legislature through the Division of Health, but it has depended upon the boards of county commissioners to supply most of the funds. In some rural counties, this money has not been provided.

A survey of the expenditures reported by the counties for medical examiners' services indicated that approximately $2.3 million is spent annually. Sixty percent of this money is for investigations, toxicology, transportation and autopsies. The remaining 40 percent is disbursed for facilities, utilities, salaries, and other functions related to the services offered the counties by the medical examiners.

Not all of the medical examiners' districts have the same funding. The more money available, the more services available to the people of Florida. State funding is needed only to provide equal services throughout the state. A homicide in Dixie County should have the same investigation by the district medical examiner as a homicide in Dade County. Only through state funding can equal protection be given.

Additional funding will increase the salaries of the medical examiners so that qualified men can be found to protect the public. At the present time, there are about 100 forensic pathologists in the United States. Florida has eight of them.

The State Legislature is being asked to assume a share of the financial burden involving investigations, toxicology, autopsies and transportation in cases of homicides, suicides, accidents

and deaths of undetermined causes. To help support this work, the Medical Examiners' Commission and the Division of Health of the Department of Health and Rehabilitative Services are asking for $1.4 million to reimburse boards of county commissioners for examinations and autopsies on 60 percent reimbursement basis.

DEATH FROM MANY CAUSES — The medical examiner is responsible for finding the cause of death in many different types of death, including drowning. But his interest goes beyond violent deaths to those involving public health.

The counties will continue to provide the necessary services and funding under Chapter 406, **Florida Statute,** which are not reimbursable by the state. These services will include when a person dies in the state:

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* suddenly, when in apparent good health;
* unattended by a recognized practitioner of the healing arts;
* in any prison or penal institution;
* in police custody;
* by poison;
* by disease constituting a threat to the public health;
* when a dead body is brought into the state without medical certification; or
* when a body is to be cremated, dissected, or buried at sea.

YOU AND THE MEDICAL EXAMINER

We all frequently think of the medical examiner as one who is involved only with homicide cases, suicides, and other acts of violent death. This is correct as far as it goes. But the interests of the medical examiner go much further.

The services of the medical examiner, according to Chapter 406, **Florida Statute,** are of a broader nature. Unpleasant as it may seem, such services may involve you or a member of your family - should you die suddenly, while in good health, as the result of an accidents, while at work, or at the hands of a bandit.

A person does not set out to be a medical examiner case. But circumstances may make him one. It is of public health interest that Florida has the best medical examiner system possible to protect you and your family in times of death and to safeguard the innocent and bring those who break the laws of society to justice.

PHOTO CREDITS — Photographs on pages 26 (top left), 30, 37, 48 and 52 courtesy of Florida Publishing Company.

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Travel Trailers and Parks

— Pleasure for Millions

Travel Trailers and Parks
— *Pleasure for Millions*

While traveling along the highway, have you ever noticed the sizable number of travel trailers being pulled by passenger cars? How about the number of mobile homes in transit? You may see hundreds in a day's time which means that millions of Americans have taken to the nomadic way of life. And it seems that when Americans travel, they like to take their "home" with them.

When traveling America's highways, you will see

* mobile homes being pulled by special tractors;
* travel trailers of all sizes that are complete homes in themselves;
* small camp-type trailers that are used only for sleeping;
* motor homes that are virtually rolling cottages; and
* the campers that rest on the back of pick - up trucks.

Where do these trailers and motor homes park when they are not on the road? It is illegal for them to park along the highway. Florida has some 4,200 parks with spaces for over 230,000 mobile homes, travel trailers, and other vehicles of various descriptions. These trailers and trailer parks have been multiplying ever since the 1930's when motor vehicles were improved to a point that they were dependable and could pull a trailer.

The old State Board of Health (now Division of Health of the Department of Health and Rehabilitative Services) was first given the responsibility for inspecting and issuing permits for the operation of tourist camps which sprang up as part of Florida's Big Boom of the 1920's. There is a vast difference between the operations of the tourist camps and the modern trailer parks of today.

IDYLLIC CAMPSITE (Cover photo) — Millions of Americans envision a Florida vacation similar to this lakeside scene, complete with trailer, charcoal burner, tables and benches, and even a pet.

TRAILERS OF ALL TYPES — One sees all kinds and sizes of motor homes, travel trailers and campers on Florida's highways and in trailer parks. Prices shown depict only the minimum for that particular kind.

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This issue of **Florida Health Notes** will tell you how the trailer park industry was started in Florida, about the various types of trailers and how they developed from the early "tin can" trailers. We will also tell you about the growth and modernization of trailer parks and the efforts of the Division of Health to protect you and the environment from health hazards created by these operations.

Automobiles and Highways

Ever since the coming of Ponce de Leon in April of 1513, Florida has attracted its share of visitors. The Spaniard failed to find his Fountain of Youth. The search by some 25 million tourists has been altered — for some people to find recreation, and for others a happy retirement. Florida attracts these millions of visitors with its sunshine, beaches, recreational facilities, fishing and hunting. Tourism is one of the largest industries in the state and what makes it possible are the automobile and the superb highways. A large number of Florida tourists come by automobile, complete with trailers which provide them with their "homes away from home."

Florida's first Gold Coast resort flourished in the 1890's near the mouth of the St. Johns River when two hotels were built on Fort George's Island. Steamers made daily trips from the thriving upstream community of Jacksonville. These hotels did not last long. Henry Flagler, after 1892, began extending a railroad down the eastern shore of the Florida peninsula, building a chain of fabulous hotels as he went. The tourists moved further south and the Fort George hotels fell dark and silent. They burned to the ground in 1904.

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Editor: Robert A. Schoonover, M.A.

Post Office Form 3579 should be mailed to Box 210, Jacksonville, Fla. 32201.

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The dusty roads gave way to improved highways. First there were two - lane roads of asphalt and brick. Then came ribbons of concrete and these developed into the high-speed superhighways of the mid-20th Century.

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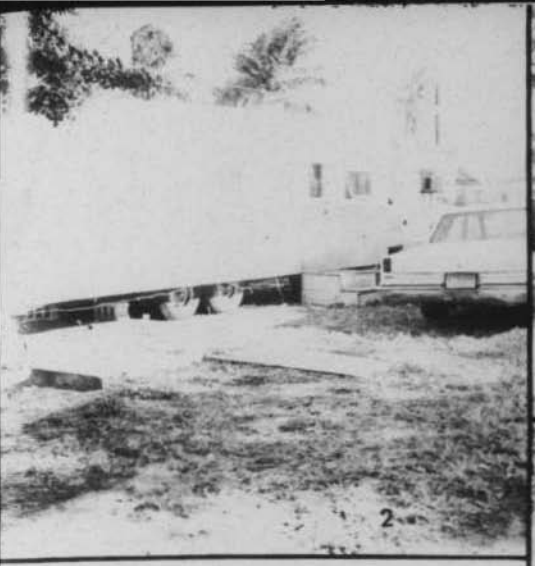

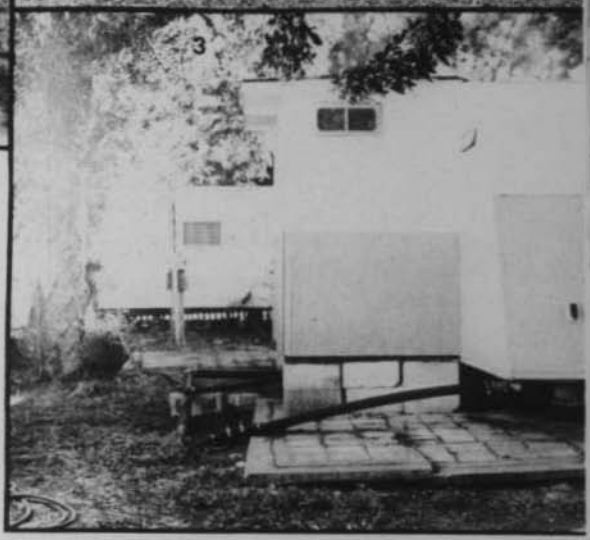

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But man doesn't like to stay in one place very long. The grass is greener over the hill and there are always new opportunities just down the road. With improved automobiles and highways,

it was only natural for man to want to travel. The automobile and superhighway are important to the Florida tourist industry. They have the only way millions of Americans have to visit the Sunshine State.

The "Tin Can" Tourists

When early in history man began to travel and night came, he had to seek shelter from marauding animals in the nearest cave. As civilization developed, travelers sought shelter in the homes of friendly natives along the road. Thus they could avoid having to camp outside where they were easy preys for robbers. As time passed, special places developed where travelers could spend the night, rest their animals, and wash down the dust of the road with a hardy brew. These were called inns, public houses, or resthouses.

As transportation developed from horseback through the stage coach and railroad phase to the automobile, the wayside inn developed into hotels, motels and resorts. In Florida these have become a billion-dollar-plus industry.

When the automobile evolved beyond the "plaything" stage into a conveyance of importance which could transport a man

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VISITORS — This travel trailer park is crowded with visitors to the Sunshine State. Many such parks have sections also devoted to the larger mobile homes.

and his family many miles in a single day, one ingenious individual developed a small trailer by which he could provide sleeping places for himself and his family.

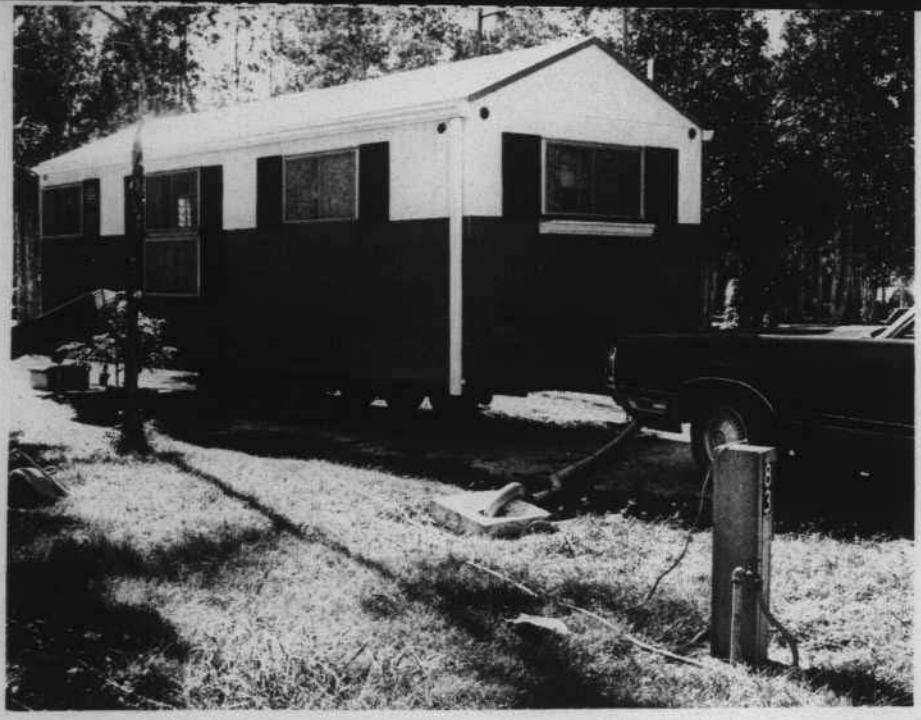
History does not record who built the first trailer, but it could have been "Joe Traveler" who was probably headed for Florida. He may have built a small, home - made affair with wood frame and sheet metal sides. This he hooked to his car. Perhaps this was the beginning of the "tin can" tourists.

Other people saw Joe's trailer and began to improve on it. Soon there was a trickle of trailers headed down the road. The number of trailers in the 1930's was negligible. After World War II, Florida began to realize its wealth lay in its sunshine, white beaches and warm climate. Roads were improved; inaccessable areas became beautiful playgrounds, and thousands of Americans began to find their way to Florida.

The Metamorphosis of the Trailer

Many people saw the advantages of Joe Traveler's trailer. It became quite useful when war clouds began to gather over Europe and the United States began to tool up for what was to be World War II. Thousands of people flocked to Florida to help build training centers, air bases, naval installations and shipyards. They brought their families with them. This put great strain on housing. Many people began to turn to trailers and they crowded together in tourist and trailer camps. Additional rooms were added to the simple trailer to provide kitchen and toilet facilities. Some people were not satisfied with this arrangement because with the addition of extra rooms, the trailer became stationary and was no longer mobile — which was the original idea of the trailer.

People wanted their trailers to be mobile and still have many comforts of a house. They added a small stove to cook meals. A sink was added with water supplied from a tank or water hose. (Water from the sink was allowed to drain directly out onto the ground.) A small refrigerator was added. A space was walled off and a toilet was added. Then came the lavatory, shower and eventually a full bathroom.



All the time, the trailer was getting larger and larger. The small sleeping trailer of the 1930's became a giant by the 1950's. The width had grown from eight feet to 14 feet; the length went from 10 to 20 feet to 60 and 70. By late 1973 some 35 states had relaxed their laws to permit 14 - foot wide mobile homes to be transported on local highways. Partitions were added, creating two and three bedroom trailers complete with baths, kitchens and living rooms. As the trailers grew larger, special tractors were needed to pull them from one place to another.

Recently, people began placing two long trailers side by side and these double trailers became homes for hundreds of thousands of Floridians. The lowly trailer became permanent. Its wheels were removed and the chassis placed on a foundation in a beautifully landscaped mobile home park. Great many Floridians now call their mobile homes "home." A survey made by Florida Atlantic University in 1972 revealed that in the Sunshine State virtually all new housing priced under $15,000, and 60 percent of all units under $25,000 are mobile homes.

The trailer "idea" in 1974 has come full circle. Where the original trailer was to give Joe Traveler and his family mobility, the change of the trailer into a non-mobile, permanent home created the need for another type of mobility for the family

who wants to get away for a weekend, or the couple who wants to spend several months touring the United States.

To provide this mobility, the trailer industry, since 1950, has developed the following vehicles for travel, recreation and vacation use:

* the camper trailer — a collapsible, folding structure of canvas or plastic, mounted on wheels, which is used for sleeping;

* the travel trailer - a vehicular, portable structure built on a chassis, designed as a temporary dwelling. It usually has a body not wider than eight feet and a length not exceeding 35 feet.

* the motor home — a self-propelled vehicle designed as a portable, temporary dwelling;

* the pick-up coach — a structure designed to be mounted on a truck chassis for use as a temporary dwelling. The driver sits in the cab of the truck and the living space is a separate unit which can be removed from the bed of the pick-up truck if desired.

All trailers and motor homes are separated by the Division of Health into dependent and independent units.

* The dependent unit is a trailer which does not have a toilet, bathtub or shower and no plumbing system which can

ROLLING HOMES — The large, individualistically styled house (opposite page), complete with eave troughs, and the camper on a pick-up truck (right) are examples of home - made trailers one occasionally sees in Florida's trailer parks.

be connected to a trailer park's sewerage system. The camp-trailer is a prime example.

* The independent unit has a plumbing system with a toilet, bathtub or shower, lavatory and kitchen sink, all of which can be connected to the park's sewage collection and water supply systems. The self-contained unit also has water storage and sewage holding tanks located within the trailer. If desired, the self-contained unit may be connected to the sewage and water supply systems of a trailer park.

Except for the camper - trailer, nearly all of the travel trailers sold today are independent or self-contained units. Travel trailers come in all sizes and models which range from the simplest-equipped trailer to luxurious rolling homes. They may be equipped with built - in furniture that is strictly utilitarian, or they may be decorated with exquisite fixtures, rich carpets and hand-crafted cabinets.

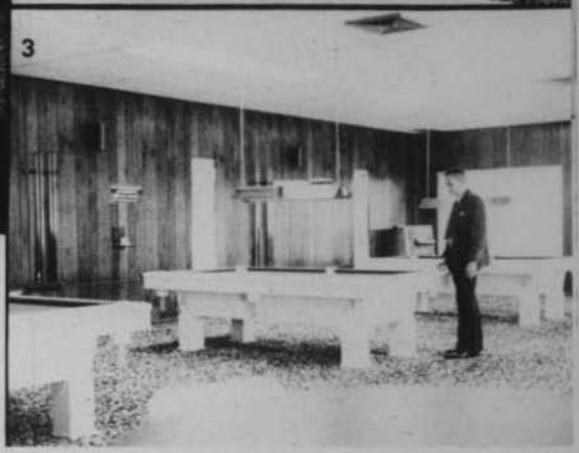
Trailers are usually engineered to be balanced and easy to pull. Within the last five years, manufacturers have begun to make trailers of fibre glass and aluminum to provide lighter weight and less wind resistance.

Trailer Parks from Vacant Lots

With the development of the trailer, came the expansion of the parks to accommodate them. A few tourist camps sprung up in what were little more than vacant lots during the 1920's. Joe Traveler found he could park his little trailer here for a fee (usually 50 cents or a $1 a day).

Few camps offered the trailer devotee many conveniences. But to attract paying customers, camp owners began to string electrical lines and people could hook up their trailers — for an additional fee. Later crude showers were built; facilities for the washing of clothes came next. But for the most part these early trailers camps were unsanitary, unclean and unsatisfactory.

People dumped their liquid and solid wastes onto the ground or into the bushes. If parks were located in a low, swampy



MOBILE HOMES — The mobile home, located in a landscapped setting, has become popular as a permanent home. The double mobile home (1) has a luxurious living room (2). Many mobile home parks also have club house facilities that include a billiard room (3).

area, mosquitoes annoyed the campers. Water supplies were inadequate — frequently being drawn from a common faucet. They came to be known as "trailer courts."

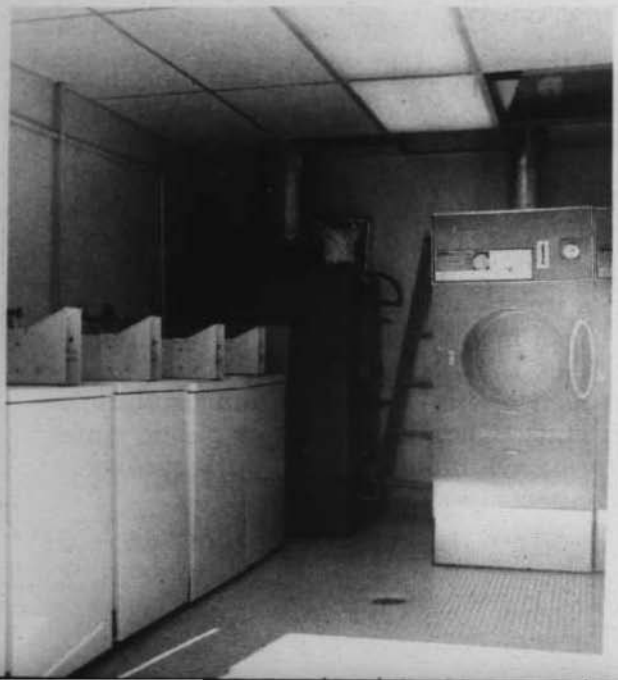
As trailers began to increase in number, more and more landowners began to provide parking space. Under the prodding of the Division of Health, trailer park standards began to improve. As trailers grew in size and comfort, the parks responded with better facilities. Driveways and sites were paved. Many parks began to provide spaces for the travel trailers. Bath houses became larger with tiled showers and lavatories. Playgrounds were added for children. When toilets were first added to trailers, the wastes were funneled into metal drums sunk in the ground. Then came septic tanks. But the high water table and heavy rains created health hazards. Present - day rules and regulations of the Division of Health state where municipal or public water and sewerage systems are available to the park property, the trailer park must be connected to such a system.

In 1972, over 51 percent of mobile home parks were on municipal water supplies and the number is increasingly yearly. A much smaller number, 20.2 percent, of the parks are on municipal sewage disposal systems. However, nearly all of those not on municipal systems have private water supplies and private sewage treatment plants which are inspected and approved by the Division of Health.

Where dependent trailers are admitted, toilet facilities have to be available within 300 feet of each dependent trailer space. However, the 4,200 trailer parks in operation in Florida in 1972 devoted only about 9,800 of the 230,000 spaces to dependent trailers.

Many of today's trailers are independent or self-contained with their own bathrooms and sinks and most commercial trailer parks are equipped with a sewage system connection at each trailer site. In addition, electrical outlets are placed at each site so the trailer could have electricity to operate lights, refrigerators and other equipment.

Under today's rules and regulations, the parks must seperate spaces for mobile home units from those provided for travel trailers. Some parks are strictly for mobile homes which



WASHERS AND DRYERS — All modern trailer parks are required to have laundry facilities.

BATHING FACILITIES — Division of health rules and regulations require all travel trailer parks to provide central bathing facilities that include toilets, lavatories and shower.

are too large to be moved easily. Other parks are developing travel trailer sections to profit from the lucrative travel trailer business. Many parks are being developed in Florida for travel trailers only. Some of these are under one-person ownership, but frequently they are owned or franchised by large corporations which have strict standards for construction, maintenance and operation. Charges for one-night stays in these parks range from $4 to $12. A mobile home lot may rent from $40 to $120 a month.

Many modern mobile home and travel trailer parks have recreational facilities and activities to attract and entertain residents and guests. Nearly every park has a swimming pool; other facilities may range from billiard rooms, sauna baths to bowling alleys. Activities include dances, card parties and various social gatherings.

Recreational Parks

The first trailer camps were probably established for those people who were staying only one night — enroute to another destination. Parks were then established for people who were using their trailers as a "home." Separate from these were

recreational camps where people could spend their vacations enjoying nature. These were first located in government - owned parks and forests — national, state and county — where people had campsites located in natural settings.

Today in Florida, tent and trailer camping is permitted at five national parks and forests, two state forests, 33 state parks and historical memorials, and many county parks. These usually have campsites with tables, fireplaces, and trash barrels. There are also bathrooms and toilet and laundry facilities in centrally-located buildings.

Most of the state and national parks also have swimming, fishing, boating available. Some have recreation lodges, museum exhibits, historical structures, nature trails, and shops where snacks or food can be purchased.

With the growth of the trailer industry since the 1950's and the many thousands of people visiting Florida with their trailers, a number of commercial recreational parks have opened

to accommodate the trailer - traveling public. These may have a limited number of spaces for dependent trailers whose occupants must use the central bathroom facilities. All of them provide connections to sewage collection systems, water supplies, electrical connections and laundry facilities, and trash disposal for the convenience of travelers. Some commercial travel trailer parks provide recreational buildings and stores. Many times the guests provide their own entertainment with sing-alongs, sport events and dances.

Fort Wilderness

One example of the many commercial parks that dot Florida, and perhaps one of the most complete, is Fort Wilderness at Walt Disney World.

The trailer - camping layout has more than 700 campsites, each nestled in its own stand of bay trees, pines, cypress and native foliage, screening it from other sites and preserving the feeling of the wilderness.

Visitors are discouraged from driving their vehicles through the park, but are encouraged to take the narrow - gauge, old-fashioned steam railroad train which connects the campground loops with shopping areas, beaches, and recreational areas. Or they may rent bicycles to get around the park.

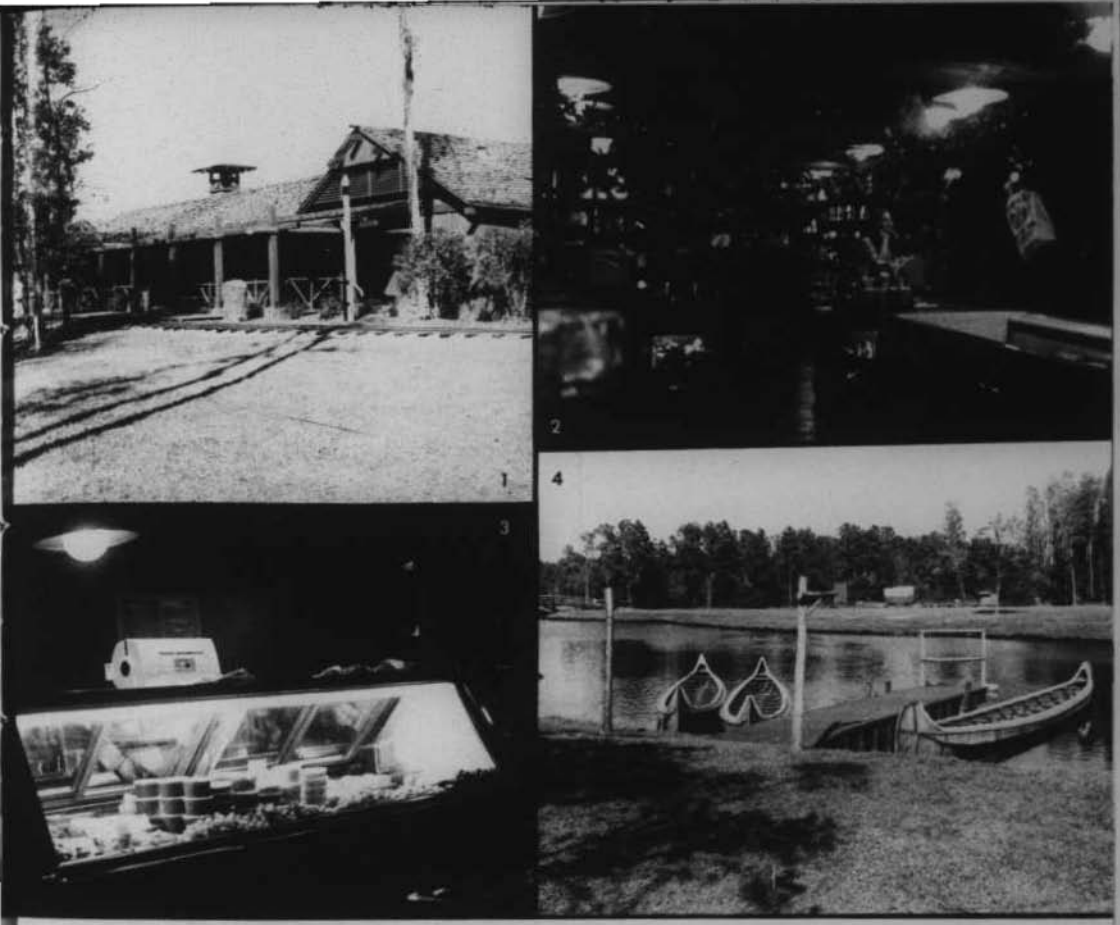
COUNTY PARK — Life is more rustic in this Broward County park. Campsites are without modern conveniences of the commercial parks (opposite page), yet they are located near modern bath houses (right) and have a certain charm.

Each campsite is provided with water, electrical outlets, sanitary disposal connections, charcoal fireplaces and picnic tables. Air conditioned comfort stations with private showers, ice dispensers, laundry facilities, restrooms and public telephones are located convenient to all campsites.

Two old-fashioned country stores carry a complete line of up-to-date camping supplies with sport clothes and basic grocery items and a delicatessen which stocks sandwiches, box lunches and beverages.

For the active individual there is much to do. A ranch is adjacent to the campground with more than 60 horses, a Shet-

TENDER LOVING CARE — Two Walt Disney World characters, Chip 'N Dale, take time out from their Magic Kingdom activities to spruce up the landscaping at the vacation kingdom's Fort Wilderness.



FORT WILDERNESS — Facilities at the Walt Disney World resort include an old - fashioned store (1) which has all types of groceries and sports wear (2) and a delicatessen (3). Canoeing (4) is just one of the many sports activities available.

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land pony ride, and a petting farm where tame animals can be fed. Sports of all kinds are available. Fishing is readily available in a specially - stocked pond. (Fishing licenses are required by Florida state law.) Night - time activities are varied and designed to provide entertainment for the whole family. Visitors may choose

* a campfire featuring sing-alongs, nature films and visits from such Disney characters as Chip 'n Dale, Br'er Bear and Br'er Fox;

* a moonlight cruise on a paddle-wheel steamer; or

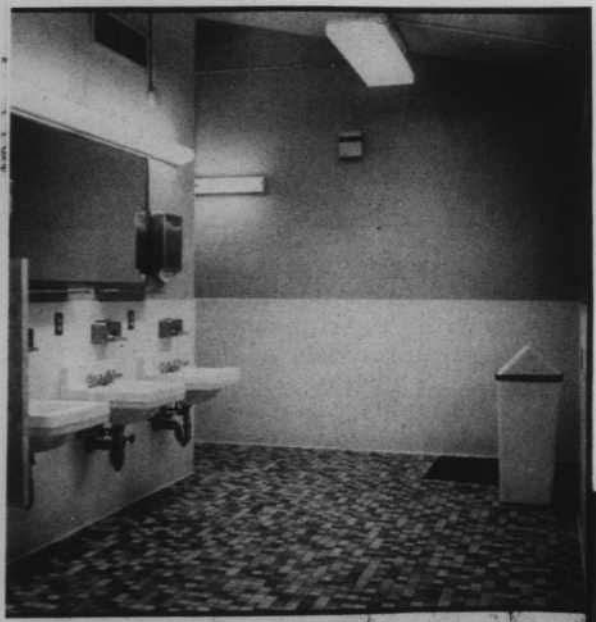
* a visit to one of the hotels in the Disney vacation complex.

The Laws of 1927 and 1939

When tourist camps began to flourish in the Sunshine State, the Legislature saw a need to keep the camps from becoming sanitary nuisances. To protect the health of the people and the environment, the 1927 Legislature gave the State Board of Health of that time the responsibility of inspecting these tourist camps and issuing permits when they met certain standards.

Among the things the State Board of Health was responsible for were

* seeing that the camps were not a source of danger to the health of the occupants of the camps and other people;



COMFORT STATION — Walt Disney World facilities include a comfort station (1) located near all campsites where bathing (2) and laundry (3) facilities are available.

FEELING OF THE WILDERNESS — Each campsite at Fort Wilderness nestles in its own stand of native foilage.

* approval of suitable garbage containers;
* maintenance of proper distance between tents, tent-housings and camp cottages;
* confinement of animals in the camp;
* the reporting of illnesses to the proper authorities.

When tourist camps evolved into the trailer camps and courts of the 1930's, there was no legislation requiring trailer camps to meet minimum sanitary regulations. City and county authorities did the best they could. The movement of a great number of people into Florida during the late 1930's to help with the war effort put a great strain on housing. Because there was no place to live, many workers turned to trailers. Only a few trailer camps were in existence at the time and they were not prepared to cope with the congestion.

Trailers were jammed side by side, row on row. There were acute problems of sanitation and health in the crowded trailer camps. Families with children and pets were pressed helter-skelter in trailers close to each other so the camp owners could make a little more money. Usually there were no laundry facilities; toilets or bathing facilities were minimal. There was no sewage disposal system except the open ground underneath the trailers where children played in the filth.

Advised of the sudden acute problem of sanitation and health involved in these trailer camps, the 1939 Legislature revised the 1927 state statutes for tourist camps to include trailer camps.

The new law included all trailer camps, including those operated by municipal governments. These were exempt under the 1927 law. All camps were required to qualify for a State Board of Health permit before they could operate. Many camp owners

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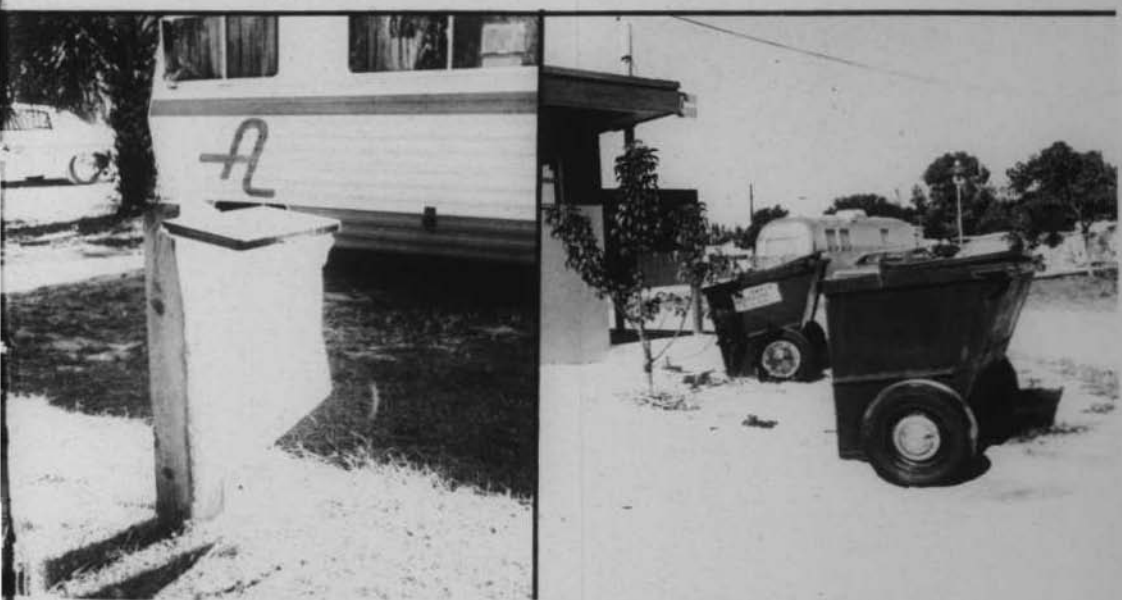
SEWAGE SYSTEMS — According to the rules and regulations of the Division of Health, each campsite in a travel trailer park must have its own sewage, water supply and electrical connection for independent units (1). In addition, they must have sewage dumping stations for the convenience of self-contained units (2 and 3). The trailer park in Photograph Two has another problem in that the dumping station is located next to a playground. The local health department has recommended to the park that it build a fence around the playground to keep children away from the dumping station.

found it necessary to make a number of changes in order to qualify for a permit.

The law specified that an automobile trailer house could not park for occupancy on the water shed of a stream or water course used as a source of public water supply, except under regulations prescribed by the State Board of Health. It also stated that it was illegal to empty liquid and human wastes any place except into a sewerage system or a privy approved by the state agency.

For the Health of the People

The Division of Health and 67 county health departments were given the responsibility to inspect and issue permits for mobile home and travel trailer parks because of their basic responsibilities to protect the public health. The intentions



SOLID WASTE COLLECTION — One travel trailer park provides plastic bags (left) at each campsite for the disposal of refuse. Another has centrally - located solid waste collection stations (right).

TRAILERS FOR OFFICE — Because of the shortage of space, one Florida county health department uses small travel trailers as offices for staff members.

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were to see that the health of the people was not affected and trailers and trailer parks do not create a sanitary nuisance injurious to the health of the people.

The Division of Health was given authority to promulgate rules and regulations to give this protection. According to the Florida Administrative Code, which has been changed from time

to time to meet the conditions of the rapidly changing trailer industry, some of the rules and regulations are as follows:

* Plans for the construction, extension or alteration of a trailer park must be submitted to the Division of Health and approved before work begins.
* No person, firm, corporation or municipality shall establish or maintain a trailer park without a current, valid permit from the Division of Health.
* A trailer park shall be located on a well - drained site which is susceptible to quick drying following rains and shall be located where drainage shall not endanger any water supply.
* Each independent mobile home space shall contain a minimum of 2,400 square feet; each dependent mobile home space and each travel trailer space shall have a minimum of 1,200 square feet.
* An accessible, adequate, safe and potable water supply shall be available and whenever a municipal or public water supply is available to the park project, such water should be used.
* An adequate and safe method of sewage collection, treatment and disposal shall be provided in each trailer park. When a municipal or public sewer system is available, such systems shall be used.
* Trailer parks catering to one or more dependent trailer units shall provide toilet and bath facilities.
* Garbage and refuse shall be stored, collected and dis-

PARKING FORBIDDEN — Some Florida counties ban overnight parking along beaches, roads and rest stops.

posed of in a manner that shall not create a nuisance, odor, rodent harborage, or insect breeding place.

* Dogs, cats or other pet animals shall not be allowed to run at large or to commit any nuisance.

* Plans for a travel trailer park must also include installation of sanitary dumping stations and adequate protection of water supplies from cross connections.

County health department sanitarians usually find that garbage and sewage disposal create major problems. Leaking sewage connections to trailer, over - loaded trash bins, and breakdown in a sewage system's lift station or packaged sewage treatment plant are not infrequent. Crowding is a problem in older parks which were not designed to accommodate the new size trailers. In many areas of the state, older trailer parks are located on prime real estate property. These are being phased out and the land used for more profitable purposes. In this way many of the older parks are being eliminated.

PLEASURE FOR MILLIONS — Americans are flocking to Florida with trailers to enjoy the sunshine, beaches and warm climate. The state has over 4,200 trailer parks which have space for some 230,000 mobile homes, travel trailers and motor homes. Some parks have dirt trailer sites (opposite), others have paved ones (right).

Sanitarians find that absentee owners usually do not give managers enough authority to make needed improvements or correct hazardous situations. This is especially true of one - person ownership.

Another problem is the parking of trailers along the roads, beaches, or rest stops where facilities are not provided for overnight camping. Frequently sheriff departments or police have to post signs forbidding trailer parking. Some counties and municipalities also ban the parking of trailers on private lots or even in people's driveways for any length of time.

A Family Affair

Man is a wanderer. The millions of Americans who take to the open road pulling a trailer behind their automobile prove this fact. From the early days of the "tin can" tourists, devotees of the trailer have formed associations to promote their causes and camaraderie. They gather together in "rallies" by the thousands where they promote family fun, conduct business meetings, and view the latest that the trailer manufacturers have built for their comfort.

According to the trailer enthusiasts, there are some unique distinctions about people who make up the trailer - hauling public.

* They are "family" people. Whether it be a weekend or a longer vacation, travel by trailer is a family affair.
* They are basically honest folks. They will protect the camp or trailer site and belongings of a stranger parked next to them as quickly as they would their own.
* Ninety percent of those who travel with a trailer do so because they want to take their own clothes, bedding and living space with them.
* Those who are retired want to see the rest of the world — but at a slower pace.

Pleasure for Millions

Millions of Americans are devoted to the nomadic way of life made possible by trailers. They find pleasure in seeing new horizons as they travel. They meet new friends and renew old acquaintances in other parts of the country. These devotees of the trailer like to travel and with trailers are able to take their homes with them.

Florida's citizens and businesses have developed and built some 4,200 trailer parks to accommodate these millions of mobile homes and travel trailers. The Division of Health sincerely hopes that the currency energy crisis will not too drastically affect the tourist industry, the traveling public, travel trailer parks, and the pleasure of millions of Americans. Any part of the energy crisis will seriously affect Florida's tourist industry and its economy.

The Division of Health and county health departments have worked over the years with trailer parks to protect the health of the occupants and people of the surrounding area. Many of the modern mobile home parks are operated so efficiently that they do not present anymore of a health problem than a subdivision of homes. But the state and county health agencies must keep up their vigilance over trailer parks to safeguard the health of the people and the environment.

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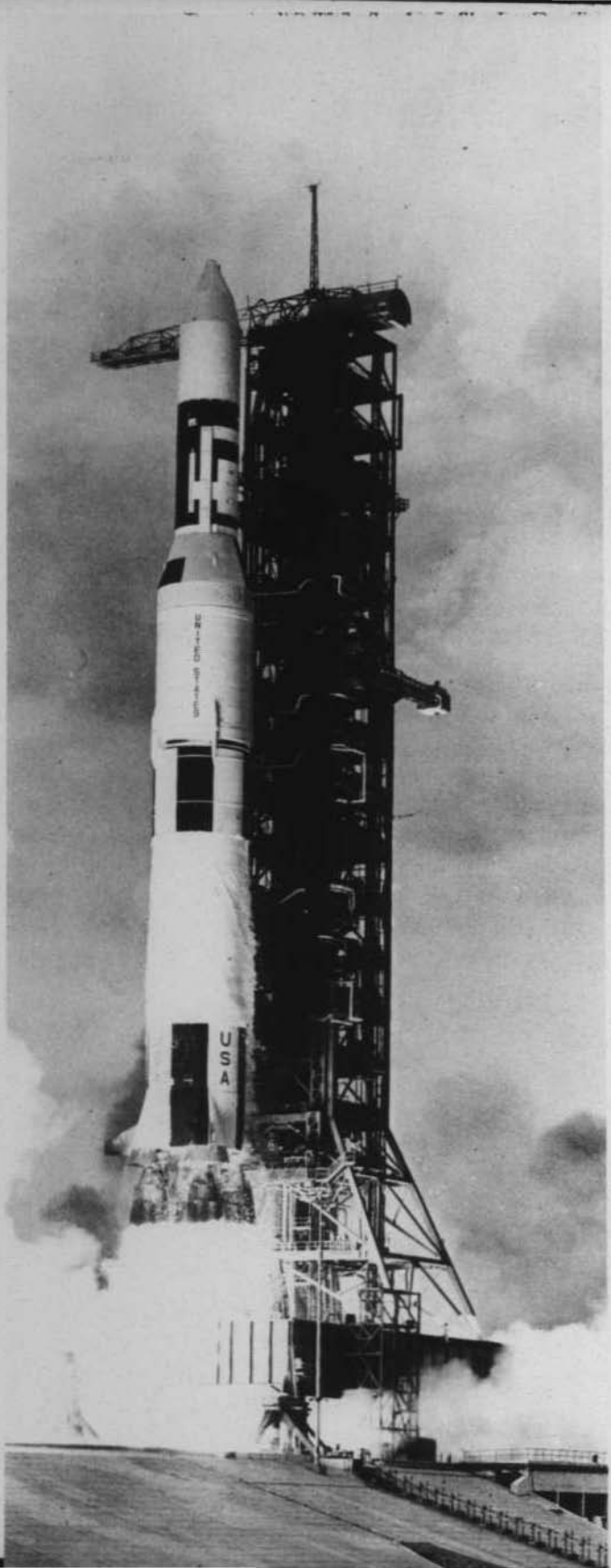
FLORIDA HEALTH NOTES

VOLUME 66 — NO. 4

APRIL 1974

NUCLEAR ENERGY

- Danger or Benefit -



NUCLEAR REACTOR PLANT (Cover photo) — Under construction at Crystal River is the Florida Power Corporation's nuclear reactor electricity generating plant. The round building in the background will hold the nuclear reactor core.

SPACE PROGRAM — Nuclear energy plays a part in America's space program. It has been used to furnish power on the moon. Future uses may include the space shuttle. (Photo credit: NASA)

NUCLEAR ENERGY

Danger or Benefit

The ornate box sat on the table in front of Pandora. She wished she did not have the box. It had been given to her by Zeus, the chief god, but he had forbade her to open it. Pandora shifted her feet, raised herself upon her couch and reached for the box.

"No!" Her conscience cried. "That's wrong!"

She, Pandora, the first woman and the wife of Epimethus, had been blessed by the gods and goddesses. Aphrodite had bestowed beauty and fascination upon her. Hermes had taught her cunning and the art of flattery. Athena had instructed her in all the works of female skills. But despite her beauty, cunning and knowledge, she wanted more than anything to open the box.

Day after day, Pandora looked at the box. She dreamed about it in her sleep. Did it contain jewels? Gold? Precious treasures from Mount Olympus, the home of the gods? She had even touched the box with her hands. But this gave her no clues to its contents.

Today Epimethus would be away from home. Perhaps if she shook the box it would reveal its secrets. Then she would know. After her husband had left for his fields, she went back to her room where the box sat on the table.

Gently she lifted it and gave it just a little shake. Nothing happened. There was no rattle. She shook it harder. Nothing!

"Is it empty?" she asked herself. She set the box on the table and placing a hand on each side of the lid, started to lift it.

"No! Zeus said, No!" By this time the suspense was unbearable.

Again she put her hands on the lid and moved it just a fraction of an inch. Nothing happened. She opened the lid just a crack and suddenly... the world was different. Sickness, disease, misery, pestilence and woes were released upon mankind. But as Pandora slammed the cover down, a rattle came from within the box. She

raised the lid and peeked in. On the bottom sat Hope, which had remained because Pandora had shut the lid before she could escape. Pandora's inquisitiveness had released untold unhappiness upon the earth, but Hope remained to comfort mankind.

The legend of Pandora's box originated in ancient Greece. No one of that day could have known of the 20th Century paradox: Is radiation one of those creatures that escaped from the infamous box?

Man has always lived with some radiation and he himself has some. It is found in nature. But ever since the first atomic bomb was exploded in the New Mexico desert, there has been a debate among public health authorities, scientists, and people, in general, as to whether atomic, or nuclear, energy is a curse or a blessing.

There are many sides to nuclear energy. It is used in medicine, industry, education, research, space programs. Nuclear energy is used to generate electricity to run our factories and trains, light, heat, and cool our homes and offices; and refrigerate and cook our foods.

On the other side, too much radiation can cause bone cancer, thyroid tumors, leukemia or worse still — damage the reproductive cells of men and women to the point where they may produce stillbirths and spontaneous abortions in future generations.

This issue of *Florida Health Notes* will tell you about radiation, where it comes from, how it is used, the dangers and benefits of nuclear reactors, what the Division of Health of the Department of Health and Rehabilitative Services is doing to protect you and the people of Florida from excessive radiation, and the need to expand the radiological health program.

FLORIDA HEALTH NOTES

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Radiation from Atoms

Radiation is energy, which, in the form of rays or particles, is sent out from atoms and molecules as they undergo internal changes or reactions.

The basis of radiation is the atom which is the building block of all matter and the simplest unit of an element that participates in a chemical reaction. The atom is composed of a dense center, or nucleus, containing protons and neutrons, surrounded by a cloud of electrons which travel at high speeds in orbits around the nucleus, similar to our solar system.

There are 103 different kinds of atoms, such as oxygen, carbon, iron, potassium, gold — each different from one another in physical and chemical properties or composition. The number of protons in the nucleus gives the element its basic characteristics and physical and chemical properties. Hydrogen, the simplest element, has a nucleus of one proton with a single electron orbiting about it. The proton in the nucleus carries one positive charge of electricity. The electron carries a single negative charge.

More complex atoms consist of a combination of protons and neutrons in the nucleus and under normal conditions, an orbital electron for each proton in the nucleus. The helium atom, for example, has a nucleus of two protons and two neutrons with two orbital electrons — equal to the two protons. Near the other extreme of the atomic scale is uranium with a nucleus of 146 neutrons, 92 protons, and 92 orbital electrons.

The nucleus of each atom has a certain degree of stability and is bound together by a certain amount of energy. Some types of atoms, such as carbon and gold, are neutral and stable. Others, such as uranium and radium, are unstable or radioactive — even in nature.

As previously stated there are 103 known elements. These range from hydrogen, with one proton, to lawrencium, which has 103 protons. All atoms of an element must have the same number of protons and electrons. But the number of neutrons in the nucleus may vary slightly. These variations are called "isotopes." Lead, which has the symbol Pb and the atomic number of 82, has 82 protons in the nucleus and 82 electrons circling around it, but various isotopes are Pb-214, Pb-210, Pb-206 — all with different numbers of neutrons in the nucleus.

CAUTION — A member of the radiological emergency response team of the Division of Health demonstrates the use of protective clothing and hand instruments used in radiological emergencies.

The first substance to be split into two other elements by a nuclear reactor was an isotope, uranium-235, which has 92 protons and 143 neutrons. This action took place under the football stadium of the University of Chicago in December 1942. The resulting reaction, fission, is the source of nuclear energy and makes possible the power to run electrical generating stations, create radiopharmaceuticals for medicines, and give mankind many other beneficial effects. It also gave us the atomic bomb.

The nucleus of an atom is stable if it cannot be transformed into another configuration (rearrangements of parts) without the addition of energy from outside the atom.

Whenever an atom, such as uranium-235, absorbs a neutron *the neutron bullet is passed through a barrier of water, graphite or paraffin, which slows it down, giving it a chance to hit the nucleus of an uranium atom and be momentarily captured.

*the protons, neutrons and electrons in the uranium atom, rearrange themselves because of the new unstable nucleus and form new atoms of other elements, each roughly half the weight of the uranium-235

*stray neutrons from the split atom go on to cause fission of other nuclei. These, in turn, give off more stray neutrons, causing additional fissions. The energy which held the atom together is released in the form of heat.

The new atoms given off by the fission are atomic wastes. These present new problems in themselves in that some of them are hot — both physically and radioactively.

The nuclei of many elements can be made to fission — break up under bombardment by neutrons or other atomic particles — but only a few will yield neutrons and so permit the progressive fissioning of other nuclei. All isotopes with atomic numbers higher than 83 are radioactive. Unstable (radioactive) nuclei tend to change spontaneously, or decay, to stable or nearly stable configurations.

Primary natural radioactive materials are those long-life elements that occur in nature and have survived in significant quantities since the elements in the earth were created. Materials that have long lives, or are dying or decaying at a slow rate, are said to have a long half-life. Some elements, such as iodine-131 have a half-life of only a few days. But another iodine isotope, iodine-129, has a half-life of 17 million years. Thus this isotope, which is given off in minute quantities during the re-processing of wastes from nuclear reactors, will be in the environment for a long, long time.

Dangers to Future Generations

Studies have been made of the effects of the atomic bomb at Hiroshima and Nagasaki, of the effects of radiation on lesser life (mice, rats and dogs), and a great deal is known about the effect of radiation on the general population. Perhaps no other natural phenomenon has been more thoroughly studied.

After the discovery of X rays in 1895, diagnostic radiation was used with almost no protection for radiologists, their auxiliary personnel and patients. Almost all of the early radiologists suffered some type of injury to their hands. Some lost fingers, or developed multiple cancers of the skin and other organs; a number died of leukemia.

The human body is composed of trillions of microscopic cells and these are composed of molecules. Radiation can be pictured as minute particles moving at high speed like bullets, but much faster. When radiation particles shoot into the human body, they collide with the molecules and smash them to pieces. This damages the cells. At low radiation doses, the small amount of damage that

occurs usually has no noticeable effect. The cells are able to repair themselves to a great extent. If a cell dies, others replace it. In cases of larger radiation doses, the cells are not able to repair themselves and various diseases may occur. Radiation is blamed for such conditions as leukemia, cancer, anemia, sterility in men and women, skin cancer, cataracts, bone destruction, ulcers and brain damage (mental retardation and epilepsy).

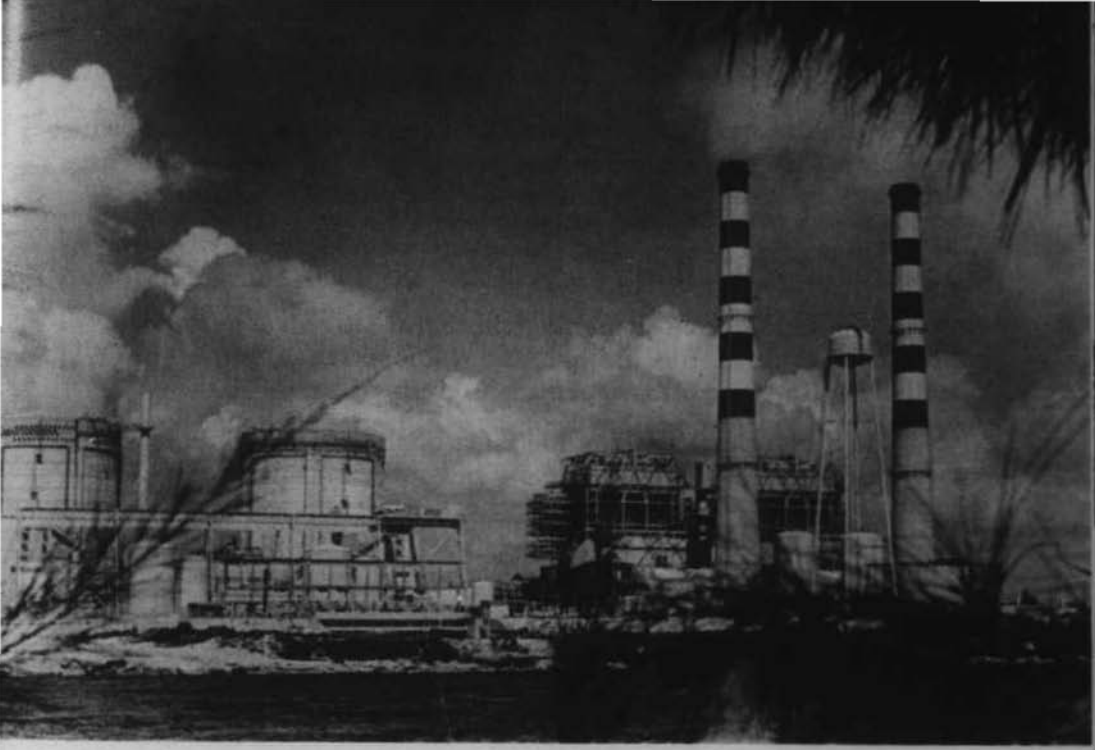
The doses of radiation are usually measured in a "rad" which stands for "radiation absorbed dose" or "rem" (roentgen equivalent man) the measure of the effects of radiation expressed in terms of X rays. Different amounts of rems given to people will have different effects according to amount and rate.

A dosage of 300 to 400 rems to a group of people over a relatively short period of time will cause half of the people to die within a two-month period. So many cells are damaged that anemia, infection or hemorrhaging, occurs and the body cannot recover. If the dose is given gradually, the body can repair cells and the dose is not fatal. But whole-body doses in the hundreds of rems are what people get only in atomic explosions or accidents.

At about 20 rems only about one percent of the people—the very susceptible ones—would be likely to get mild radiation sickness. They will become weak from the loss of blood cells. Below 20 rems, no one would be likely to feel anything. However, body cells can be damaged even with a small dose—measured in millirems (one-thousandths of a roentgen).

Most toxic materials or poisons have a point below which they have no effect. Above this point, they will make a person sick or kill him. In an effort to protect the population, the U.S. Atomic Energy Commission and the International Commission on Radiation have set standards as to how much radiation people can receive.

The Atomic Energy Commission has set a limit of five rems that a worker in an atomic energy plant should not exceed in a year for a period of 40 years. An individual in the general population should not receive more than one-tenth, or 0.5 rems each year for 70 years. The average dosage to a population should not exceed one-third of that, or 0.17 rems a year for 70 years. The standard-setting bodies recommend that the general population receives no more than 170 millirems of radiation exposure each year—which is roughly the amount being received from natural sources.



SUPPLIER OF ELECTRICITY — South Florida's requirements for electricity are partially met by two nuclear reactor plants (left) at Turkey Point. Much more spectacular are the stacks of the fossil fuel plants. (Photo credit: Florida Power and Light Company)

People who have received excessive radiation exposure can look the same, walk and talk the same way they have for years, but the radiation may affect their reproductive cells contained in the genitals. These cells hold the genetic code which determines the characteristics of children. If the damaged cells all happen to be the ones used in the conception of a child, the child may be born with serious, often fatal genetic defects, ranging from severe malformations to a slight increased susceptibility to disease. Excessive X ray dosage increases the chances for genetic defects in the offspring. These go from mental retardation and blindness to a host of lethal mutations.

Frequently such genetic defects, when they occur, are latent and can be passed on from parent to child for many generations before emerging in a serious form. Thus the full effects of genetic damage may not show up for hundreds of years — or it could

appear in the next generation. The defects caused by excessive radiation also resembles symptoms of other diseases and thus they may be difficult to define as the true effects of radiation.

Sources of Radiation

When radioactive elements disintegrate high velocity particles are emitted from the atoms. The radioactive atom in natural radioactivity gives off two principal kinds of particles.

*The alpha-particles, the heaviest of the radiation, consists of two neutrons and two protons. They produce a dense track of ionization and dissipate all of the initial energy over a short distance. This sheet of paper, or a few inches of air, can stop alpha-particles.

*Beta-particles are like high velocity electrons with much less electrical charge. They produce a scattered radiation effect and have a longer range than alpha-particles. They have a wide range of energy from a thousandth of an electron volt to a few hundred thousand electron volts. Depending on the energy, beta-particles can be stopped in most cases by a variety of materials, including cardboard, wood, glass or plastic.

These particles may be accompanied by the emission of gamma rays which are electromagnetic waves. They are not particles with mass or electrical charge, but a type of energy which can travel long distances in the air. Like X rays, they can penetrate the body.

Man has always been exposed to radiation. Since the beginning of time, radiation from outer space has penetrated the earth's atmosphere in the form of a light, steady rain of cosmic rays. In addition, minute quantities of natural radiation can be found in soil, rocks, water and all living things—including man himself.

Some types of rocks give off gamma rays but the actual dose to people is somewhat less because people have a tendency to live on soil—rather than on rocks. People of the mountainous areas of the Western United States receive more radiation from the sun than people on the coastal areas of the East. Florida has areas where there are concentrations of radioactive elements in the soil. Radioactive materials may be found in construction materials (granite and certain kinds of concrete). There are traces in the air

we breathe, the food and water we consume, even in our bodies.

For a long time, scientists thought that natural background radiation was completely harmless. In recent years, much more has been learned about the effects of low levels of radiation and it now appears that natural background radiation may be responsible for certain amount of diseases that have plagued mankind over the years.

Since the discovery of X rays and radioactivity in the 1890's, there has been a tremendous increase in the amount of man-made radiation. People are getting it from medical and dental X rays, fall-out from nuclear weapons, color television sets, glow-in-the-dark watches and many more sources. Higher doses of radiation are given by chest X rays, by cosmic rays to residents of higher altitudes (such as in Denver) and by natural background than by a nuclear reactor plant.

Use of Radiation in Medicine

One type of radiation X rays was discovered by Roentgen in 1895 and it promptly became widely used in medicine. Within a few months, this new radiation was observed to cause skin burns or loss of hair. By the time of World War I, scientists had well documented the fact that X rays could produce cancer. In 1926, another scientist observed the mutation, or biological changes, made possible by exposure to X rays and this opened the research on the genetic effects of radiation.

Shortly after Madame Marie Curie succeeded in separating radium from uranium ore in 1898, radium began to be used in medicine for many purposes. People were drinking radium water and taking baths in it. Physicians were injecting it into their patients. It was used in the treatment of joint and muscle pains, high blood pressure, arthritis, gout, lumbago. Some doctors even listed radium as a cure for anemia — which radium unquestionably causes.

There are dangers from radiation but there is much good provided by the proper application of nuclear energy to medicine. Physicians must tread the fine line between giving adequate amounts of radiation or radioactive materials to carry out the diagnosis or treatment and giving too much radiation. As in all uses of radioactive materials, they must weigh the good accomplished by radiation against the potential harm it can do.

MEDICAL USE — This 25-million electron volt betatron used for deep therapy in a Florida hospital is just one of the many different radiation machines used in medicine in Florida.

The increased use of radioactive materials and machines that produce radiation presents many problems for the Division of Health. Many hospitals and clincis have generators that produce technetium-99m for use in diagnostic scanning. Most hospitals have X ray departments for diagnostic purposes. X ray machines are also found in the offices of dentists, physicians, chiropractors and podiatrists who are not specially trained in radiation protection. Many times the people who make the X ray films are not trained to protect themselves, the patients, or other people from radiation. Sometimes, these people are instructed in the use of the X ray equipment by people who have had no specific training in radiology.

In addition to X ray machines, practitioners of the healing arts in Florida have begun to use mobile radiation diagnostic machines to go to small outlying hospitals to diagnose patients. Physicians are also implanting nuclear-powered pacemakers in patients' chests to keep defective hearts working. One Florida hospital has built a cyclotron to produce radioisotopes which are used in radiopharmaceuticals. Most radiopharmaceuticals are short-life isotopes that have an abundance of protons and are high in energy. Radioactivity of some may be only a few minutes; others may last for several days, making them useful in the detection of tumors. The X ray is too important a tool in medicine to abandon. The best way to reduce exposure is to eliminate unnecessary X ray examinations.

Industrial Use of Radiation

The use of man-made isotopes in industry has grown rapidly since World War II. They are used in industry, space programs, agriculture, and by the Armed Forces in nuclear-powered ships and submarines.

The number of manufacturers of radioisotopes, the number of sources for each manufacturer, and the size of sources have increased substantially.

Radioactive materials are used to
*measure pipe thickness;
*check growing trees for rot;
*weigh phosphate in order to determine moisture content;
*determine defects in cattle;
*determine levels of liquid in tanks;
*measure the surface moisture of roadbeds;
*inspect the contents of jet engines without tearing them down;
*measure the effectiveness of lubricants in an automobile engine; and
*measure minute thickness of paper.

The beverage industry uses radiation to sort out partly-filled cans at high speed and inventory the solution of corrosive materials in tanks. The ship-building industry uses X rays to take non-destructive pictures of welds and other assemblies. Workmen frequently take unnecessary risks with nuclear devices. They carelessly expose themselves to radioactivity when they mishandle a container.

The food industry uses radiated seeds to produce greater yields. Irradiation is used to retard spoilage, examine cereals for foreign materials and grain infestation, examine candy bars and determine the freshness of oranges. There has been some debate on the effects of this irradiation of foods. Animals which have been fed irradiated foods have shown some patterns of stunted growth and diseased blood cells.

The Energy Crisis

The current energy crisis and the shortage of oil have made people more aware of the need for the United States to have the ability to expand its supply of electrical power.

contained in coal. Solutions are being developed to handle these problems but new devices are expensive and their use will raise the cost of power from 10 to 20 percent.

Nuclear stations have unique "clear air" qualities and do not involve combustion. The atmosphere is not endangered from nuclear reactors. The amounts of material needed to fuel the plants and the waste products are quite small. Despite the growing confidence in the safety and reliability of nuclear power, critics are concerned over the safety and health effects of the nuclear plants.

Although the construction cost of nuclear reactor plants is high, the construction cost of fossil fuel plants is moving up very rapidly as the result of increasingly severe environmental restrictions on their effluence and therefore the nuclear power plants have become competitive with fossil fuel plants. Also, at the present time, nuclear fuel costs are much less than fossil fuels.

The big disadvantage in nuclear power is the loss of the coolant that cools the reactor core. If the rate of energy gets excessive, the tremendous heat can melt down the core with subsequent release of large amounts of radioactivity from the fuel to the core container.

The construction and operation of nuclear reactor plants are so rigidly set by the Atomic Energy Commission that the continuous level of exposure from nuclear power plants will be lower than the hundredth of a thousandth of a roentgen.

The American people face public exposure to radiation much greater than this from medical diagnostic use of X rays. There is additional exposure of the flying public to cosmic rays from the sun. Special concern has been expressed by public health officials for the pilots, stewardesses and crew members of high-flying planes who are exposed to these cosmic rays.

The Division of Health has a limited number of copies of Alphabetical Index of Florida Health Notes **available for libraries and agencies that keep back issues of the publication. Write: Editor,** Florida Health Notes, **Division of Health, Box 210, Jacksonville, Florida 32201.**

The electrical power generating industry is the largest industry in the nation with a capital investment of some $85 billion. Of all the forms of electrical uses, 18 percent goes for residential purposes — home heating, lighting, air conditioning, appliance operation; eight percent goes for commercial purposes, such as office buildings. Transportation takes 23 percent; industrial uses — the manufacturing of goods of various kinds and running factories take 43 percent, and a group of small uses make up the remaining eight percent.

Energy is supplied by the burning of coal, oil, natural gas and wood, and by the use of hydroelectrical power and nuclear fission. Coal and oil create some very serious environmental problems. Power plants using these fossil fuels give off nitrogen oxide and sulfur oxide which are harmful to people with respiratory problems. There are also other pollutants given off, such as mercury and radioactive elements. Combustion of coal and oil is responsible for roughly one-third of the mercury that gets into our environment annually. Radioactivity from coal-burning plants is greater than that from nuclear power plants due to the thorium

INDUSTRIAL USE — Radiation is used to check the density of soil.

Although no member of the public has ever been injured by a nuclear reactor plant accident and the low rate of workers' accidents, the accident factor of a nuclear power plant is not quite zero. Every licensed user of radioactive material must have emergency plans. These are required by the Atomic Energy Commission and must correspond to the state plan.

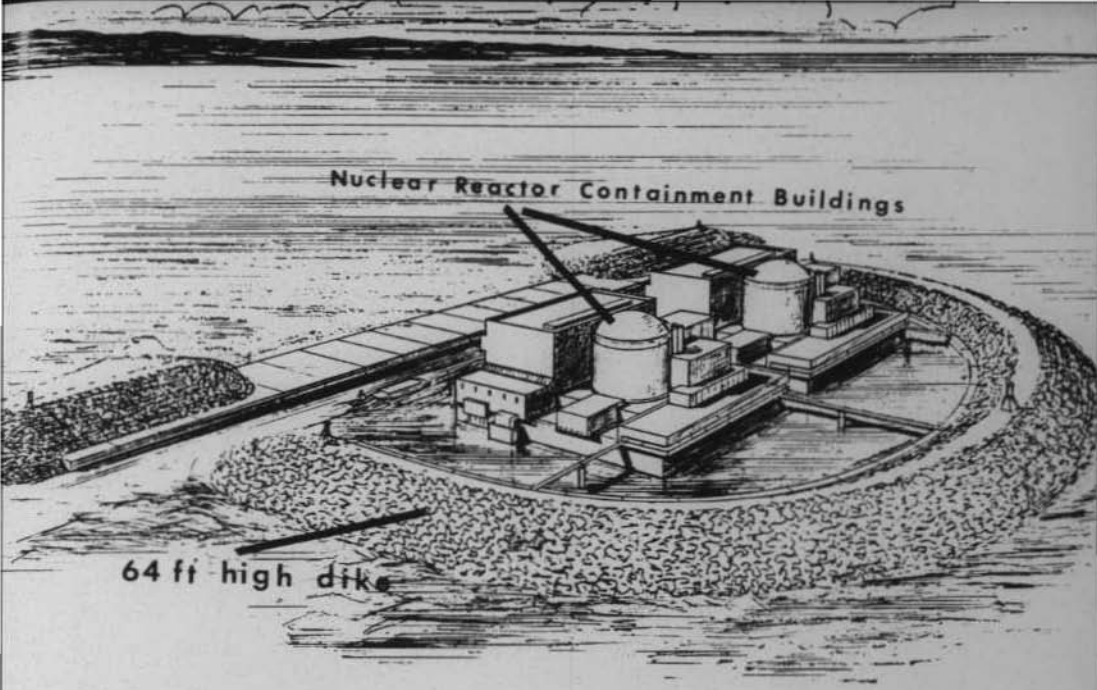
Nuclear Power Plants

At the present time there are two nuclear power reactors in operation in Florida producing electrical energy. The first of the Florida Power and Light Company's nuclear power plants at Turkey Point started operation in October 1972, and the second unit in May 1973. Florida Power Corporation has a nuclear reactor plant at Crystal River that will be loaded with fuel in September 1974 and go critical (begin operation) in January 1975. Two more stations are under construction in St. Lucie County. The Jacksonville Electrical Authority has signed a letter of intent to purchase two nuclear power reactors from Off-Shore Power Systems, and is currently testing ocean bottoms off Jacksonville for possible sites.

Florida Power Corporation is also considering the construction of two reactors with possible 1,100 megawatts capacity each in Florida. These may use helium coolant and graphite fuel which can tolerate high temperatures, instead of water in the primary cooling loop. Effluent from sewage treatment plants may be used to replace evaporation of water from a self-contained secondary cooling system.

Nuclear reactor power stations in the past have been tailor-made for each site. This has led to problems of construction, licensing and environmental surveillance which have raised the cost of the entire plant.

The Off-Shore Power Systems has proposed to build nuclear reactor plants similar to land-based plants, on a barge platform, that can produce 1,150 megawatts and be equipped with all systems currently found on land-based plants. The company, which is located in Jacksonville, has proposed to use newly-designed shipyard-type facilities that will mass produce and test these floating nuclear reactor plants which will be of standard-



ATLANTIC STATION — This is an artist's conception of two nuclear reactor plants floating behind their protective dike off the New Jersey coast. The plants are to be built by the Off-Shore Power Systems of Jacksonville for a New Jersey utility.

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ized design. When the factory gets into full operation, it is expected to produce four of these plants a year. The plants will be built and fully tested at the factory in Jacksonville, but the fuel will not be introduced until the plants are towed and secured at their permanent locations.

The first two plants are scheduled to be delivered to the Public Service Electric and Gas Company of New Jersey in late 1970's or early 1980's. The company will construct a breakwater 2.8 miles from the Jersey Coast behind which the nuclear power plants will float. The curved section of the breakwater will face outward toward the ocean and a straight section will face the shore. Designed to stand the worst possible storms, the breakwater will be composed of a foundation of stone upon which pre-cast concrete caissons will be sunk and filled with sand and rock. The core of the breakwater will be sand and quarry rock covered with a layer of 800 pound rock topped with a layer of eight-and-10-ton jetty stone. They entire structure will then be covered with two

layers of pre-cast concrete armour units called "dolosse" which will range from 40 to 60 tons in weight.

The breakwater will be the largest man-made structure ever placed in the ocean, with an approximate width of 300 feet at the bottom, a width of 30 feet at the top, 2,140 feet long at its widest point, and a height of 64 feet at mean low tide. Construction will take some 4.4 million tons of material, including 20,000 dolosse.

The nuclear power plant (400 feet square and 167 feet high) will ride on a platform in the area of some 100 acres inside the breakwater. The reactor core of the plant will consist of 193 fuel assemblies, each containing 204 fuel rods of slightly enriched uranium-235 encapsulated in zirconium alloy tubes. Flowing around the core will be water in a self-contained loop that will be heated by the nuclear fission. The heat from the water in the primary system will be transferred in a heat exchange chamber to boil water contained in a secondary system. Millions of pounds of steam per hour will operate the generators and turbines that produce the electricity. All steam-driven generators (whether fossil or nuclear-fueled) require large quantities of heat in order to operate. The Off-Shore Power Systems plants will draw cooling water from the ocean through its condensers where it cools the steam from the turbines. This steam is not radioactive. At no place

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FUEL CASKS — Casks with "cold" (new) fuel for the nuclear reactors are unloaded at the Turkey Point facility.

in the plant is there a direct connection between the radioactive material and ocean water.

Seawater will enter the breakwater at the ends of the curved section. One million gallons of water per minute will be drawn up by the circulating pumps into the condensers. Traveling screens and low approach velocity will prevent the entrance of fish and debris into the plant. The water will be discharged through pipes under the breakwater at a velocity that will readily mix and distribute the heated water with the ocean currents. The temperature of the discharged water will be only 16 degrees warmer than the surrounding seas. This will be rapidly cooled by dilution with the surrounding waters so that only a small area will be measurably heated.

Should a minute leak occur in the fuel rods, solid particles of radioactive material that enters the reactor's coolant will be filtered out. Dissolved particles will be passed through evaporation where clean water is distilled for reuse. The remaining impurities are mixed with concrete, stored for the radiation to dissipate, and then the material will be taken to a licensed nuclear waste materials burial ground.

At the end of a year's operation, spent fuel will be moved under water from the reactor to a spent fuel pit in the plant where the waste materials can continue to decay and cool down. The fuel rods are then loaded into spent fuel casks and transported by barge to re-processing plants. Here the uranium-235 and other important isotopes are removed for reuse.

Unlike the Off-Shore Power Systems' plants, which will be located in the ocean, the nuclear power plant at Turkey Point must receive its fuel and send out its waste products by truck. One shipment of spent fuel consists of a specially-designed cask made of lead which is designed to hold one fuel element consisting of some 70 rods, 12 to 15 feet long and about one-foot square. The casks are put through a series of tests: a 30-foot drop; 40-inch drop onto the end of a six-inch diameter pin; 30 minutes of fire at 1,475 degrees Fahrenheit; and eight-hours immersion in water. After these tests, which are done in sequence, the casks must not leak.

Trucks carrying these shipments are under contract with a special company. Drivers are trained technicians who use instruments to check for radiation leakage. Every two hours, or 100

miles, they check with their headquarters so it can be informed of any possible damage to the environment. The Crystal River nuclear reactor plant will be served by railroad which will permit the shipment of more than one cask at a time.

Although a number of shipments of radioactive fuel have been made over Florida's highways, no accidents have occurred. In addition, some 50,000 shipments of radioactive materials a year are flown in and out of Florida's airports. Many hospitals and clinics have standing orders for radiopharmaceuticals to be flown in each week from manufacturers in other parts of the United States.

Protecting Florida and Its People

The Division of Health is responsible for protecting the health of Florida's citizens and the millions of tourists who visit the Sunshine State. To do this, it

*conducts inspection programs that check on X ray and other radiation-producing machines and appliances that could endanger the public's health;

*licenses and inspects users of radioactive materials;

*maintains a radiological laboratory in Orlando;

*carries out surveillance of the environment for natural background radiation and any rise in the level of radiation from various sources;

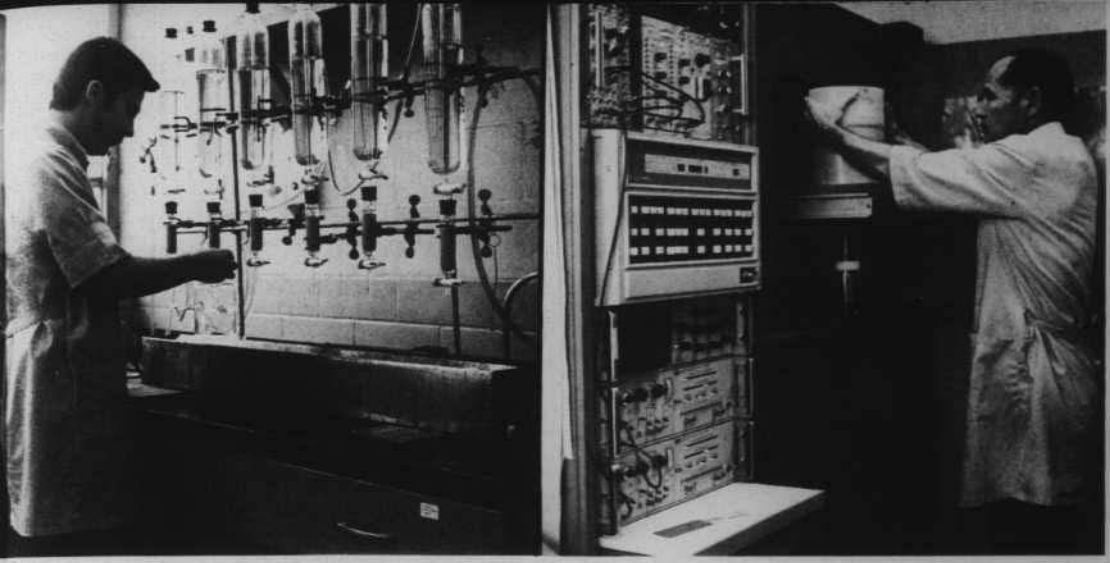
*possesses an emergency response team that is ready to go into action in cases of accidents involving radioactive materials; and

*participates in a national warning system that alerts public health and civil defense authorities to man-made and natural disasters.

Radiological Laboratory

The special radiological laboratory has the responsibility of testing materials from the environment for radiation contamination. There has been a shift in recent years from gross analysis to specific radionuclide analyses. The gamma spectroscopy has increased 73 percent in the last four years. Alphs/beta analyses have been reduced 45 percent.

Samples tested include air particulates, iodine, water, vegetation, soil and silt, biota (plants and animals), and milk. During 1973, 2,429 samples were tested. While this was not a large



RADIOLOGICAL LABORATORY — A laboratory technician operates ion exchange columns that isolate strontium-90 (left) from environmental specimens. Another technician places a specimen in a gamma spectrometer for study.

number of specimens, some of the tests are quite complicated. Tritium analyses and strontium-90 analyses, which were not done at all in 1969, represent 32 percent of all analyses in 1973.

Environmental Surveillance

Environmental surveillance (through the Florida Radiation Surveillance Network) was started as the result of concern over the fall-out from nuclear weapons testing and the introduction of radionuclides into the biosphere and atmosphere. Currently six regions of the state are submitting milk and air particulate samples to the radiological laboratory, and two stations are collecting and sending in precipitation samples.

Levels of natural background radiation have been tested around the Turkey Point nuclear reactor plants since 1966, partly to train the staff and partly to develop a standardized method of surveillance. Usually only two years of background study are required.

Because of their concern for the health of the people of Florida, two utility companies (Florida Power and Light Company and Florida Power Corporation) have donated to the state health agency a 27-foot vehicle equipped as a $60,000 laboratory to assist with the surveillance of the environment around the nuclear

reactor plants. The staff of the radiological laboratory, which mans the mobile unit, is capable of answering a radiological emergency by driving the vehicle to the site of the accident. The vehicle contains instruments for radioactive detection and contamination, hand-held survey instruments, and protective clothing for entering radioactive areas. There is also a wind-direction indicator, that can be read from inside, which shows which way the radiation may be drifting.

With the experience gained by Division of Health physicists in the study of natural background radiation around the Turkey Point plant, they are able to detect the rise in tritium (a beta emitting isotope of hydrogen) which is escaping by evaporation from the 4,000-acre cooling pond. The amount of radiation escaping is slight and below the limits set by the Atomic Energy Commission. Surveillance around the Turkey Point nuclear reactor plant is carried out by collecting air samples and water specimens from wells surrounding the cooling pond. This is to detect any leakage. Some of the wells are in such inaccessible places that helicopters (loaned by the utility company) are used to get to the wells.

The Emergency Response Team

When Florida became an agreement state with the Atomic Energy Commission in 1964, it had to develop response plans to

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MOBILE LABORATORY—Two Florida utility companies have provided the Division of Health with a mobile radiological laboratory to assist in radiological emergencies and environmental studies.

handle emergencies involving radioactive materials. At first the Division of Health had organized six teams in various parts of the state that used nuclear experts in industry, military, education, and some state employees. But due to the liability involved when it came to enforcing the rules and regulations, this plan was changed.

A revised plan was inaugurated in 1969 using all state employees who were headquartered in the Radiological and Occupational Health Section, Bureau of Preventable Diseases of the Division of Health. Now the plan has been revised again where there are three emergency teams—in Miami, Orlando and Jacksonville—who are on the alert 24-hours a day, seven days a week.

The emergency response team was called into action at one time when radiological material spilled in a compartment of an airplane contaminating several workers, equipment and facilities in two Florida airports. Division of Health's staff members had to locate the passengers who had used the plane and check to see if their luggage was contaminated. Fortunately, the radioactive material had a short-half-life and therefore was of little danger to people. The team has been also called into incidents where shipments of radioactive materials became crushed, lost or misplaced.

National Warning System

The Division of Health also is tied into the National Air Warning Alert System which is intended to provide early emergency warning in cases of nuclear accidents, tornadoes, hurricanes or enemy attacks. There are 87 outlets in Florida with federal, state and local offices tied into the system. The warning system gives a community time to protect itself through advance warning and to take appropriate action to prevent an emergency from developing. The program has value to public health by alerting the Division of Health's Emergency Medical Services, Sanitation, and Radiological and Occupational Health Sections, and the Bureau of Sanitary Engineering to emergencies and providing them with time to respond.

A number of seminars are also being planned by the Division of Health and Division of Emergency Government to instruct

hospital administrators, hospital staff members and emergency department personnel on how to cope with a major problem that might occur in the movement or release of radioactive materials. A survey showed that only one-half of the hospitals of the state could cope with such problems and 90 percent were in need of training of their emergency department personnel.

Inspection and Licensing Programs

Florida has over 700 licensees of radioactive materials which include hospital teletherapy units, universities, industrial plants, civil defense offices, and nuclear sources and service facilities.

Medical, dental and other healing arts uses of diagnostic X rays are by far the major sources of man-made radiation exposure. Reports of 1972 showed there were over 5,800 registrants and nearly 11,000 radiation machines in Florida. The healing arts accounted for about 95 percent of these X-ray machines. Inspectors look for

*proper shielding of the X-ray tube heads;
*filters which remove low radiation but permit the use of the most useful rays in sufficient quantities to penetrate the patient and expose the films;
*filters which stop the radiation of low energy and which do not provide any diagnostic information;
*collimators, cones or lead rings which confine the beams to the areas of diagnostic or clinical interest; and
*area shields or wall shieldings to protect other areas from exposure.

High speed X-ray film and favorable developing conditions are methods recognized by the Division of Health to reduce exposure of patients to excessive radiation. Equipment, such as image intensifiers, is also recommended to increase the efficiency of fluoroscopes and minimize the time the patient is exposed to radiation.

Stepping up the Radiological Health Program

Since World War II, the radiological field has continually expanded with more complex instruments for diagnosis and

treatment — for industrial uses — for additional nuclear reactor plants, and creation of radioactive materials.

The Division of Health, through its radiological health program, has the responsibility to detect the hazards of radiation as they appear in the environment and take steps to see that radiological materials are controlled. The state health agency must evaluate the safety programs of the licensees of radioactive materials, make intensive studies of engineering and design of facilities to determine the potential for the release of radioactive matter, monitor various pathways to man in order to determine population dose, and coordinate, develop, and implement radiological emergency plans.

Currently, the radiological health program has six men, plus staff members of Pinellas, Dade and Broward County Health Departments, who inspect the X-ray machine licensees, microwave ovens, and color television sets for excessive radiation.

Because of the continuing growth of the use of X-ray machines and radioactive materials, the Division of Health needs to expand its staff so it can better protect the people of Florida from undesirable radiation. While thousands of inspections of X-ray machines have been made, some of the registered equipment has never been inspected to assure that they are being operated in a safe manner.

The Federal Government licenses the manufacturers of X-ray machine components; the Division of Health registers the users of the machines. To do this better, the Division of Health and Department of Health and Rehabilitative Services are asking the 1974 Florida Legislature for approximately half a million dollars and 16 new positions in the radiological health program. An additional six positions have been requested for the related occupational health program.

Danger and Benefit

When Pandora opened her box, she had no idea that curses and woes were being loosed upon mankind. The scientists who discovered X rays probably did not know of the harm they could cause when used excessively. The men and women who split the

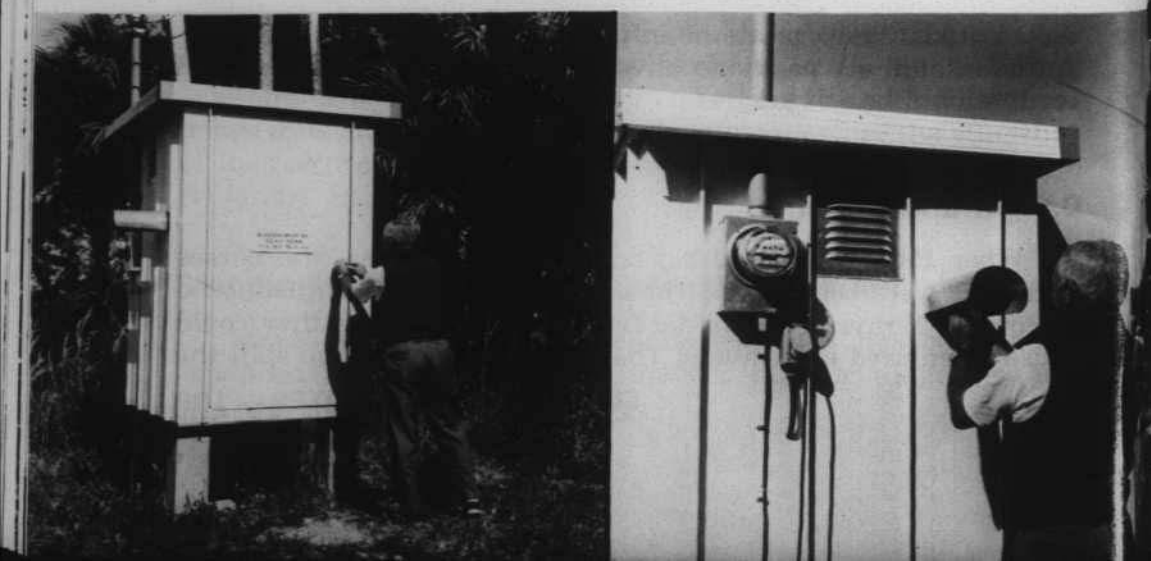
first atom may have been aware of the potential injury to humans, but they must have also weighed the beneficial uses against the dangers.

We have learned much about nuclear energy in the more than three decades since the first atom was split. We are more aware of its dangers and potential benefits. But we need to expand our monitoring efforts to keep pace with increased use of nuclear energy.

Man is at the crossroads. The growing population is calling for more energy at the time the environment and our future generations need protection. Man holds the key to his future. Nuclear energy, like fire, has become both a danger and a benefit.

The people of Florida need a watchman who can warn them when radiation levels approach the danger point. The Division of Health has been given this responsibility. But with the expansion of the medical uses of radioactive materials (which contributes much to man-made radiation), and the growing number of nuclear reactor plants in Florida, the Division of Health drastically needs additional staff to continue to protect you, the people of Florida.

AIR SAMPLING STATIONS — These Division of Health stations are located in strategic areas around nuclear reactor plants to sample radiation in the air. A staff member (left) replaces an air filter.



FLORIDA
HEALTH NOTES

VOLUME 66 – NO. 5

MAY 1974

Nutritional Needs of Older Floridians

GROUP DINING (Cover photo) – Senior citizens enjoy a meal at a church center. This is one way older people get at least one nutritious meal a day. Another is through home delivered meals.

EATING ALONE – Meals for some older people, when they eat alone, may consist of a sandwich and potato chips. Inviting a friend in for a meal is one way of breaking the monotony.

nutritional needs of older floridians

*Mrs. Albert, a widow, hates to eat by herself. Since her husband died, she has been alone except for occasional visits from her children. She enjoyed cooking for her husband when he was alive. Now that she is alone, she seldom fixes herself a complete meal. She snacks on toast and coffee for breakfast, skips lunch, and may make a sandwich in the evening.

*Since John Sweet's wife died, he eats his meals at a local diner. His wife did all of the cooking (She was an excellent cook.); and John used to brag, "I can't even boil water." Now he doesn't know how to buy or prepare the food he needs to maintain good health. Eating out all the time is expensive and not very appealing as a steady diet.

*Mr. Applesmith was recently told by his doctor that he has diabetes and needs to follow a special diet. The physician gave Mr. Applesmith the printed diet, but he and his wife do not understand the list and are afraid to ask the doctor questions. They are concerned that they are not following the instructions as they should.

*Mrs. Wayfarer has severe crippling arthritis. A friend advised her to take an expensive vitamin supplement. She spends a large part of her small income on the vitamins hoping for relief. She has little money to buy the foods she needs.

With spiraling inflation, many of Florida's older citizens are finding it more and more difficult to provide themselves with adequate food and the necessities of life. They frequently do not recognize their needs for nutritionally adequate meals. Some are misled by food fads; others continue to purchase and prepare only those foods which they like and are accustomed to eating. About a third require some kind of modified diet to prevent or control a chronic disease.

Many older people are not aware that good nutritional habits formed during early years can maintain good health in later years and have a direct effect on the diseases, such as cardiovascular disease, diabetes, and hypertension (high blood pressure) that could trouble them.

The Division of Health of the Department of Health and Rehabilitative Services recognizes the many nutritional needs of the aging and through its nutritionists, and those of the county health departments, is working with other agencies to meet the needs. Health agencies provide nutritional guidance while related agencies offer one or two meals a day, through home delivery or by bringing the older people to a center for group dining. Home health aides, homemaker services, shopping services, food stamps are related resources in the community.

This issue of *Florida Health Notes* will tell you about the nutritional problems of aging, the services available for older persons, about the types of feeding programs in progress in Florida, and the work of the Division of Health nutritionists with these programs. It will also define what good nutrition is and tell about the kinds of food you need to maintain good health throughout your life.

Who are Florida's Senior Citizens?

Florida has one of the largest populations of senior citizens in the nation. In 1960, one out of nine persons in the Sunshine State was over 65 years of age. At present, the ratio has risen to almost one out of six persons. It is expected that there will be an even greater proportion of older people in the state's population in the future, particularly with the energy crisis making life in a warm climate increasingly appealing to retirees.

FLORIDA HEALTH NOTES

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The growth of the older population in Florida is due to a number of changes in society. A declining birth rate has reduced the number of people in younger age groups. Advances in medical science have resulted in declining death rates with increasing numbers of people surviving to an older age. In Florida there is also the in-migration of large numbers of retired persons because of the warm climate. All of these factors have contributed significantly to the concentration of older people in Florida.

Women outnumber men; for each 100 men there are over 125 women. Many women live alone and suffer from inadequate nutrition. Older persons congregate in four counties: Dade, Pinellas, Broward and Palm Beach. Other counties with high population concentrations include the Southern Gulf Coast counties.

Many older people are in good health, energetic and able to enjoy a period of leisure and retirement. They are able to look after their needs, find satisfying relevant experiences, and are interested in other people, places and things. Others are easily fatigued and many are chronically ill. They need the assistance of other people to fill their needs and are constantly worrying about themselves. People who need assistance in meeting nutritional needs are frequently those who have inadequate incomes, are chronically ill or incapacitated, or socially or emotionally isolated.

COOKING FOR ONE – Some people who live alone dislike cooking for just one. This frequently leads to a poor nutritious diet.

Millions of men and women in our country who are over 65 years of age live in poverty or near poverty as defined by the Social Security Administration's Poverty Index. Seven out of every 10 older persons live with families; one-fourth live alone or with non-relatives; one in 20 is institutionalized. With rising living costs and fixed incomes, there are inadequate funds to purchase foods at their inflated prices.

Nutritional Needs with Aging

Nutrition is a 20th Century science relating the nutrients in food to bodily processes of digestion, absorption, and metabolism. This science has provided knowledge on some 60 nutrients identified as essential to health and how these nutrients affect the body. Older people have about the same needs for protein, minerals and vitamins as they had earlier in life. However, as people grow older they frequently are not aware that their bodies' metabolic rate slows down so they need to reduce their caloric intake because of this and of decreased physical activity.

Age may also be accompanied by one or more chronic diseases. Diet is increasingly being identified by medical science as one of the important factors which relate to longevity and good health. Poor nutrition in early years can contribute to degenerative disorders later in life. Obesity is a contributing factor to diabetes and heart disease. Likewise, salt (sodium) intake is related to hypertension (or high blood pressure). Cholesterol and saturated fats in the diet are incriminated as risk factors in heart diesase. Excessive alcohol is identified with liver disease.

However, there are misunderstandings about diet and health. Many food fad diets and nutrient supplements are sold to older persons to cure arthritis, cancer, or many other ills. These people should be under the care of a physician since these diseases are not related to food or nutrition.

Quality of Diets

Studies carried on in the past found that less than half of the low-income aged received nutrients and calories sufficient to insure

their nutritional health. Their poor health led to withdrawal from friends, dependency upon other people, even institutionalization.

In one study, only seven percent of the older persons had adequate food intake. Those who lived alone were more likely to have poorer quality food intake than those who lived with spouses. Similarly, the widowed tended to eat poorer quality diets than those living with a spouse. Those with less education tend to have poorer diets than others.

The Division of Health, in June 1972, estimated that the monthly cost of food necessary to maintain a minimal-adequate diet was $34.39 for an older person living alone, or $63.05 for an elderly couple. A large percent of this age group on low incomes spend less than half of this amount each month on food. With the rise of the cost of living, these figures are already too low.

Many senior citizens need assistance in planning menus, transporting food and groceries and preparing meals. Some 20 percent are estimated to need some help; about 11 percent have a significant need for nutritional assistance. Those who are most likely to require assistance are the widowed, divorced, the never married, those who live alone, or those living with other than family or spouses.

Many have problems of getting out and shopping. Stores are located too far away; some people have difficulty in obtaining transportation; others have difficulty in walking and carrying home the heavy bags of food. Although transportation to shopping areas and restaurants may be available, the emotional problems of feeling "unloved" or the lack of a desire to eat when alone may be deterrents. Those persons who have difficulty in getting to the stores may shop as seldom as once a month. Infrequent shopping would result in a nutritionally limited diet and inadequate food supply.

Due to physical handicaps, some elderly persons have difficulty in preparing meals. Others do not know how to cook, dislike cooking, or feel that cooking for just one person is too much of a bother. Individuals who live alone and people of increasing age are more likely to have problems preparing meals. The necessary cooking equipment, such as stoves, or storage, such as refrigerators or freezers, are sometimes lacking in homes, apartments or rooming houses. The equipment may not be in working condition.

PREPARING MEALS – Food service workers at a Volusia County school prepares meals for the ''meals-on-wheel'' program.

Nutrition and Physical Well-being

The process of aging begins at conception. Adequate nutrition during gestation, infancy, childhood, adolescence and adulthood contributes to desirable physical and mental development and good health throughout life. Defective nutrition can lead to overweight, chronic diseases, poor dental health and digestive problems.

Food enters the body through the mouth and therefore the effects of age on the mouth is important. About 50 percent of Floridians have lost all of their teeth by the time they are 65, and more than two-thirds are toothless by age 75. This usually results from poor mouth care and defective nutrition in early life rather than from the normal aging process. Fluoridation, in addition to good professional dental care and nutrition, would help preserve the teeth of many older persons.

People who have false teeth may have difficulty in retaining their dentures because the supporting alevolar bone is gradually shrinking. Pressure sores develop in the mouth because the lining of the mouth becomes thinner and less resistent to pressure. The joint controlling the movements of the jaws wears out and when enough wear occurs the size of the bite is reduced, causing discomfort in chewing.

The older person without all of his teeth may have some eating problems; but studies suggest that people without any teeth can "gum" food surprisingly well. Cost and dislike, rather than chewing problems, are cited as the most frequent reasons why older prople do not eat meat.

The second childhood of man was characterized by Shakespeare as "sans taste" (without taste). People lose some of their sense of taste with age. Children have a great number of taste buds. These decrease with age, leaving older adults with 30 to 40 percent of their original number. Most older people can eat and enjoy the more spicy foods without difficulty and seasoning contributes to greater enjoyment of food.

Most older persons can digest food as well as always — except for fats. This is because of a decrease in the enzymes needed for fat digestion. The absorption of protein, calcium, iron and thiamine is slightly reduced. To many older persons, the functions of the large bowel receive more attention than any other organ. Many become chronically constipated and this becomes a favorite topic of conversation. A diet with little fruit and vegetables, inadequate fluid intake, along with little physical activity, long standing use of laxatives and incomplete chewing of foods contribute to constipation.

Energy requirements are reduced with age; this means that there should be a gradual decrease in the number of calories consumed. This decrease in activity may be aggravated by arthritis or other conditions that make moving about painful. The reduction in calories is important to prevent obesity. Food selection must be based on foods higher in protein, vitamins and lower in concentrated fats and sugar that supply only calories.

The dimming of the vision of older persons, particularly those who live alone may cause problesm in using the stove and reading labels. Major chronic diseases affecting older people that may require

a therapeutic diet prescribed by a physician include diabetes, high blood pressure and arteriosclerosis. Arteriosclerosis, the major cause of death in our society could be reduced if good nutrition were practiced throughout our lives. Only a change in the eating habits of the American people could alter the rising death rates of this killer. Stroke and arthritis that limit mobility, also kidney disease and digestive disorders, can interfere with food preparation and modify nutritional requirements.

Meeting Nutritional Needs

Because many older Americans have difficulty in meeting nutritional needs, newer federal legislation has provided for food and nutrition programs to reach the elderly. Most people do not like to eat alone and may not cook for themselves. With little activity, nothing to look forward to, they lead a solitary existence. Socially isolated persons need special persuasion and inducements to participate in any group activity.

Two types of "feeding" programs have been developed to help older Americans. Home delivered meals (meals-on-wheels) and group dining programs are used in some Florida communities to reach lonely, old people. Some programs help people to have one good meal a day; others are avenues by which the senior citizens are made acquainted with the services available through congregate dining. After participating in the group meals, many are encouraged to join in group activities. Sometimes participants introduced to the program are effective in recruiting others to join the "dinner club".

New programs not related to any existing community service may have difficulty in reaching isolated older citizens. Programs housed in senior centers or other facilities providing services are able to build upon a relationship already developed.

Linking the out-reach to meal projects can meet many related needs. Problems are identified and the people can be referred to other services they need, such as health clinics, social services, and other community services.

A number of home-delivered and congregate dining programs are in operation in Florida. These are financed in several ways: local charities, contributions or fees from the recipients, federally-sponsored programs under the Older Americans Act (Titles III and

VII), church budgets and state funds. Agencies operating these programs include schools, churches, specially organized agencies and councils for the elderly.

Meals are obtained from private caterers or nursing home, hospital, church, school or program kitchens. Some programs serve both a hot noon meal and a cold supper. The number of recipients range from a dozen persons in rural programs to several hundred in some larger counties. Most use volunteers to deliver "meals-on-wheels" or serve as hosts and hostesses in congregate dining programs.

Congregate dining programs are recommended for people who are unable to prepare adequate meals for themselves or who are unable to shop for groceries. Social and recreational programs and nutrition education are suggested as components of the meals programs. Home-delivered meals are recommended only for these who are confined to their homes because of illness or immobility.

A Meals-on-Wheels Program

As an example, one "Meals-On-Wheels" program in Florida is operated by the Volusia County Council on Aging, which also carries on several other programs. The service is county-wide with meals prepared under contract with the Volusia County Board of Public Instruction.

The meals are prepared five days a week by school food service workers in centrally-located schools. The meals are based on the school lunch menu for students, but modified to older tastes. When the schools are closed, churches and volunteers may help the participants by purchasing a meal—either in the church social rooms or in the homes of volunteers. The meals are served in specially-designed, styrofoam trays (which keep hot foods hot and cold foods cool), packed in stacks of 10 and delivered by volunteers to the homes. At one centrally-located school, an American Red Cross vehicle picks up the meals and takes them to distribution points (mostly churches) where the teams of volunteers take them to the homes of the clients.

People eligible to receive the meals are those who are unable to prepare meals for themselves and are 60 years of age or older. They are interviewed by a volunteer who helps them to fill out

TEN TO A ROUTE – A volunteer prepares a stack of specially designed trays that contain the meals for the "meals-on-wheels" recipients.

applications and determine other needs. These needs are then referred to appropriate agencies. The participants, who frequently live alone, look forward to their hot meal and the daily visit of the volunteers. When the meals were first delivered, the recipients greeted the volunteers in their night clothes or bathrobes. After a while, they began to dress and look forward to the arrivals of the volunteers.

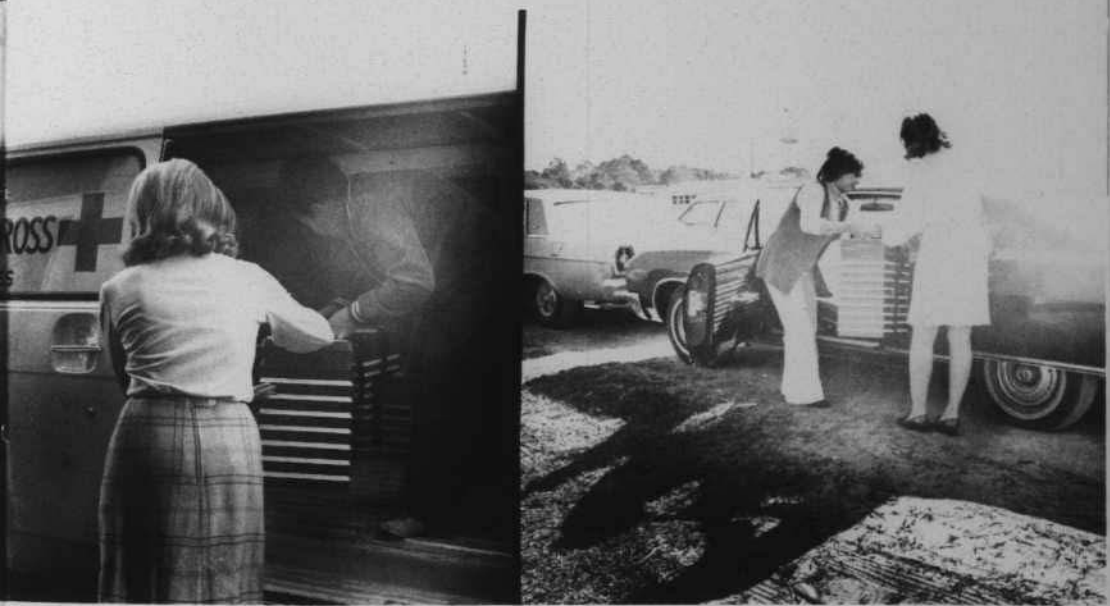
Clients receiving the meals are unable to go to the stores because they lack transportation, motivation to cook for themselves, or because they are blind, arthritic, crippled or have had a stroke. They say the meals help them to feel better and give them more energy. They add that they "don't know what we would do if it were not for the 'meals-on-wheels'."

The meals are provided on the basis of a sliding scale — $1.30 per meal down to those who cannot pay anything. Over 50 percent of those receiving the meals pay the top price; only seven percent pay nothing at all. Most older people do cherish their pride and want to contribute financially to the program.

The Volusia County Meals-on-Wheels Program is successful because of the large number of volunteers who participate in the program. Volunteers include some 500 men and women of all ages — ranging from young housewives who may donate an hour a day to delivering meals to retired couples who want to help other older

people who are less fortunate. Some 350 meals are delivered in less than an hour in Deland, Orange City, DeBary, New Smyrna Beach, Edgewater, Oak Hill, and the Halifax area, comprising Daytona Beach, Holly Hill and Ormond Beach.

The program is financed with federal funds available through the Older Americans Act and has a three-year duration. Because of this three year stipulation of the grant, the administrative costs of the program are kept low and the Volusia County Council on Aging is



READY TO ROLL — The trays of food are loaded into an American Red Cross van for delivery to distribution points (left). Some are loaded into a volunteer's car for nearby distribution.

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making plans for the community to take over the financing of the project.

The nutritionists of the Volusia County Health Department spearhead the program by identifying the community's needs, taking leadership in exploring resources, and 'helping to write the grant request. They serve on the nutrition council that sponsors the program and prepares the cycle menus.

A typical meal consists of a protein-rich main dish, two or more vegetables, salad, dessert, bread and margarine and milk. Special diets are limited to a liberal diabetic diet in which dessert is replaced by fruit.

Some "Meals-on-Wheels" programs, such as the one operated by the Escambia County Council on Aging and Community Action Program, serve several diets, including a regular meal, a 1,500 calorie meal for diabetics, a bland meal, low sodium meal and a fat controlled meal. This program serves a hot meal at noon and a cold meal which can be refrigerated and eaten later in the day. Meals in the Escambia County program are prepared in the kitchen of a local hospital.

The Group Dining Program

Eating with others is an important part of the individual's experiences throughout his life and contributes to his sense of belonging to a family or group. If others are not present at meal-time, food is less important to most people. Eating habits depend to a large extent on the atmosphere in which food is eaten.

The setting for group dining depends on the facilities available in the community. Group dining projects have been set up in church social halls, senior citizen center, neighborhood centers and homes for the aged. Facilities are provided without cost to the project. The

'YOUR DINNER IS HERE' – A "meals-on-wheels" volunteer delivers the meal and waits for the client to answer the door. One team of Volusia County volunteers can deliver 10 such meals in an hour.

ENJOY YOUR MEAL – A recipient of the "meals-on-wheels" is encouraged by the volunteer to start on her meal. Clients receive meals because they lack transportation, motivation to cook for themselves, or because they have a handicap.

facilities need to be near where the older people live or convenient to public transportation. The elderly are mostly attracted to facilities with which they are familiar and which are within walking distance. Frequently it is easy to locate a serving site, but difficult to find a location that has a kitchen large enough to store, prepare and serve the food.

A new group meal program is in Jacksonville-Duval County operated by the Jacksonville Community Involvement and Nutritional Services Program of the Department of Human Resources. The program is planning to serve up to 855 meals each day in a number of settings. In addition, 75 meals are delivered to senior citizens who are "shut-ins".

The meals are prepared by a commercial caterer who uses vans to deliver food in sterno-type heaters that keep the hot foods at 150 degrees Fahrenheit. Cold foods are kept at 40 degrees or cooler. The four-week cycle menus are planned by the caterer, who employs a registered dietitian as a consultant. Menus are approved by the project's nutrition advisory council and consumer council. Recipients may donate money toward the cost of their meal but there is no fee.

Group meals are a drawing card to bring the older persons together for other activities. It is possible to utilize other services available in the community, provide nutritional education, recreation

MEALS FOR GROUP DINING – Meals for a congregate dining program in Jacksonville are loaded into a van at caterer's kitchen (left) for transportation to the dining rooms. They are then unloaded at neighborhood and church centers where the older people will enjoy the food.

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and leisure-time activities. In many projects the group dining programs are established in liaison with local health and welfare agencies. The Jacksonville project will have a number of supporting services, including transportation to the centers at meal time, escort and shopping assistance services (operated by volunteers), lectures, recreation, games and arts and crafts.

What Older Persons Should Eat

Older people need about the same nutrients as younger people — protein, minerals and vitamins. But because they are less active, the calories they consume need to be reduced. Planning meals to enjoy requires consideration of ethnic, regional and individual tastes. If a senior citizen enjoys a particular food that may not fit into his diet, serving of this food, once in a while, will make life a little more interesting.

With retirement, the senior citizen has more time for breakfast. This meal should fulfill one-fourth or more of the day's nutritional requirements. Other meals should be equally distributed throughout the day, according to individual preference. Part of the day's food

can be consumed as snacks between meals. This helps those who cannot eat much at any one meal. A small snack or glass of warm milk before going to bed may induce a good night's sleep.

Spices and herbs can be used to help foods to taste and smell good. Home delivered meals or community dining, such as already discussed, may help the person who is reluctant to eat alone or who lacks the incentive or physical ability to cook for himself. Because food habits of a lifetime are difficult to alter, the individual needs to build upon his existing food pattern and aim to change only those necessary to improve his health or control a chronic health condition.

Proteins needed to repair and maintain body tissues and build antibodies to help fight infection can comprise 10 to 20 percent of the total calories. Two cups of milk or two ounces of cheese; four to five ounces of meat; or such other protein-rich foods as peas, beans and nuts; and four or more servings of bread and cereal products can supply the 46 to 56 grams of protein needed daily for men and women 55 years and older. Persons who have had a debilitating condition or illness may benefit by higher amounts of protein.

Fats provide energy, satiety (the feeling of being overfed) and increase palatability of foods. Absorption and digestion of fats may be a problem for some aging digestive systems. Fats are concentrated sources of calories and only about 25 to 35 percent of the calories should come from fats. Part of this fat should be obtained from polyunsaturated vegetable oils, such as corn, cottonseed or safflower oils, or margarines fortified with vitamin A.

Carbohydrate-rich foods are typically found in many diets because they are relatively inexpensive, convenient and easy to chew. Enriched breads and cereals, starchy vegetables and fruits provide carbohydrates along with needed vitamins and minerals. Carbohydrates should provide about 50 percent of the calories of a normal person's diet.

Vitamins needed are vitamin C from citrus fruits, strawberries, cantaloupes, tomatoes, cabbage and greens. Vitamin A comes form dairy products, liver, fortified margarine and dark greens and deep yellow fruits and vegetables; B-complex vitamins come from a variety of vegetables, whole grains, meat and dairy products. To maintain

intake of B-complex vitamins, the use of enriched bread and cereals should be encouraged.

Calcium supplied by milk products and greens is important for strong bones and to combat osteoporosis (fragile bones), which is common among many older people. Some iron from foods, such as liver, greens, dried beans and fruits, is important to maintain hemoglobin levels in the blood.

Consumption of six to eight glasses of fluids is recommended for adequate kidney function and to control body temperatures. Milk, fruit juices and soups can be used to meet this need and to provide other nutrients. Thirst is usually an accurate guide to the need for fluids, though some older persons may need encouragement to drink more fluids. If constipation is a problem, whole grain cereals or breads, raw and dried fruit, fruit juices, raw vegetables and additional fluids may help.

Generally, the nutritional needs can be met by following the four food groups recommended for adults. Colorful meals help tempt poor appetities. Four or five light meals may be enjoyed more than three heavy meals. Since older persons need fewer calories, they must carefully choose food which provide essential nutrients, avoiding excessive intake of concentrated caloric foods which contribute to obesity. Vitamin pills or nutrient supplements are generally not

A HOT MEAL – Meals are served cafeteria style at this neighborhood center. Many times this will be the only hot meal some of the people will have during the day.

PLEASANT ATMOSPHERE – People enjoy eating together and this helps the appetite. Facilities are near the homes of older people or convenient to public transportation.

needed with a nutritionally adequate diet and should only be taken if prescribed by a physician.

Keeping weight down may be a problem for some people. The sudden unwelcomed bulge may be due to less activity and the same old eating habits. Being overweight is bad for appearance and health. There is no quick, magic way to remove excess weight. Crash diets may be dangerous and usually have no lasting effects. The real way to lose weight is with moderate eating and exercise.

To control calories, use lean, well-trimmed meats; plain, fresh, frozen or canned vegetables; fresh, frozen or canned fruits; enriched or whole-grain cereals and breads; skim milk instead of whole milk, and fewer concentrated fats and sweets.

Just as important as food is daily exercise. Consult a physician but a simple thing like walking instead of driving the car can make a difference.

Keep teeth and dentures in good condition to feel and look better. But there still can be chewing problems. Chop or grind food which may be hard to chew. Shred raw vegetables. Substitute fish, eggs or peanut butter for meat once in a while. Use cheese as a sauce on vegetables, omelets or toast.

To stimulate appetites make a special effort to serve attractive meals. Use foods of varied colors, shapes and textures.

ACTIVITIES – There are other activities for older people. This center has classes in ceramics. Other activities include games, nutrition education, lectures and other programs.

For the person who does not enjoy eating alone, invite in a friend for a meal. This helps both the host or hostess and guest. An occasional trip to a restaurant also can stimulate appetites but budgeting requires carefully planned food choices. To control costs, compare prices before going to the store. That way you don't buy what you don't need. Study the four food groups and choose the less expensive foods from each. Use leftovers creatively to add variety and interest to meals. For example, keep a container in the freezer for extra portions of meats and vegetables for soup.

Balanced nutrition and eating correctly are important ways to keep well.

Nutrition Services

Concern for the well-being of the nation's senior citizens has generated interest in persons 60 years of age and older and in their nutritional needs. Nutrition services and programs for older persons

can help them provide adequately for their nutrition while meeting important social, emotional and physical needs.

Public health nutrition services are available through all of the county health departments and the Nutrition Section of the Division of Health. Public health nutritionists

*answer questions about food, nutrition and diets;

*conduct nutrition education programs for groups of senior citizens sponsored by health departments or local councils on aging or other community organizations. Information available includes meal planning, roles and functions of nutrients, food sources of nutrients, preparation of foods to conserve nutrients, food buying, food additives and food labeling;

*give individual and group counseling in regular and therapeutic diets prescribed by a physician;

*give guidance in the use of food stamps or stretching limits of food budgets;

*provide nutrition education materials;

*assist hospitals, nursing homes and extended care facilities with all aspects of food services, including inservice education for food service employees;

*give guidance in meeting food service standards for Medicare and Medicaid certification and state licensure;

*provide consultation on food service management and nutrition education to agencies planning and implementing new group meals and home delivered meals which are designed to meet the unique, nutritional, social and emotional needs of the elderly; and

*coordinate all services with other agencies and organizations in the county.

Good Nutrition Is No Accident

In times past families cared for Grandmother and Grandfather in their homes. The older family members received the same nutritional benefits as the rest of the family. Today, because of smaller homes and modern living conditions, including greater mobility, many grandparents live alone or with their spouses and must prepare their own meals.

Public health workers are concerned that the elderly receive the food necessary to maintain good health. Meeting nutritional needs doesn't happen without some effort on the part of public health workers, nutritionists and society. Older people frequently do not realize they need proper food to keep well. They need to be encouraged to participate in nutrition programs that will give them guidance regarding the food and nutrients they need each day.

The Meals-on-Wheels and group dining programs are providing nutritious meals for some older people. But these programs need to be more widely adopted as community projects and expanded to serve all those who are in need.

The Four Food Groups

The basis of good nutrition is the four food groups mentioned frequently in this issue of *Florida Health Notes.*

The Milk Group

Two or more cups of milk or its equivalent daily. It may be fresh fluid — whole, low fat, or skim, evaporated, dry or buttermilk, or in the form of cheese, ice cream or ice milk.

The Meat Group

Two or more servings daily each consisting of two to three ounces. This group includes meats, poultry, fish, eggs, dry beans and peas, nuts, lentils, soybeans, peanuts, peanut butter.

The Bread and Cereals Group

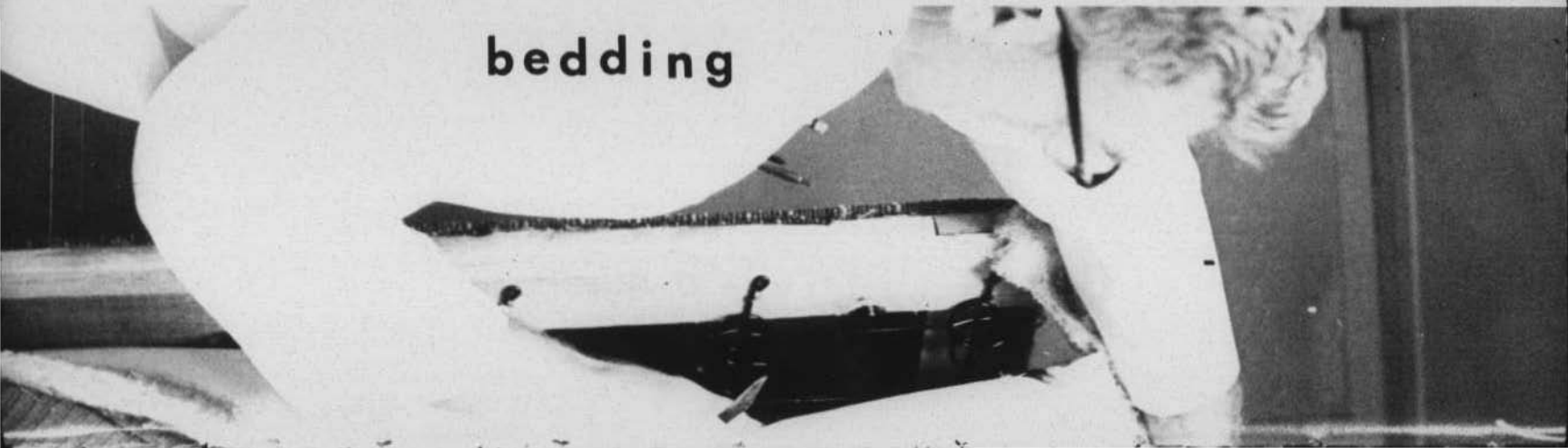
Four or more servings a day of whole-grain or enriched breads and cereals, including ready-to-eat cereals, cooked cereals, rice, grits, noodles, macaroni or spaghetti.

The Vegetables and Fruit Group

Four or more servings daily. Citrus fruits, strawberries, cantaloupes, tomatoes, greens, green peppers, cabbage, broccoli, and brussel sprouts are main sources of vitamin C. Dark green and deep yellow vegetables are rich in vitamin A. These include collards, kale, spinach, chard, turnip greens, broccoli, sweet potatoes, carrots, pumpkins, mango, cantaloupes and apricots.

mother
FLORIDA
test tubes


children


bedding

DIVISION OF HEALTH'S REPORT on 1973

Laboratories, leptospirosis and larvicides

Books, babies, bedding, bronchitis, bats and banned goods

Septic tanks, shellfish, sickle cell, sanitation and swimming pools

Nutrition, nursing homes, naturopaths, nuclear energy and nurse-midwives

Glaucoma, gnats, gonorrhea, grants and groceries

* * * * *

The list goes on and on and on. Each item has one thing in common with the others. They are part of the 1973 *Annual Report* which relates the activities of the Division of Health, Department of Health and Rehabilitative Services, and the 67 county health departments.

Each item is important in that it relates to the health of the people of Florida and the health of the people is the concern of the Division of Health. *Florida Statutes*, Chapter 381, states: "It shall be the duty of the division of health to

formulate general policies affecting the public health of the state;

supervise generally the enforcement of laws, rules and regulations relating to sanitation, control of communicable diseases among humans and from animals to humans, quarantine and the general health of the state . . ."

For many years *Florida Health Notes* has presented in its June issue a condensation of the *Annual Report* of the Division of Health. The 350 pages of this book are full of details, tables and scientific language. From this technical presentation *Florida Health Notes* has summarized some of the major items that tell you what your public health agency is doing.

Family Planning, Nurse-Midwives and Screening Programs

The care of mothers and babies, family planning, medical and dental services and nutrition are important services to many people.

The U.S. Department of Health, Education and Welfare reported that in 1973 Florida had 218,230 low income women of childbearing age who were eligible for subsidized family planning. Of these 108,985, or 49.9 percent, were provided services through public health clinics. Of this number, 73.3 percent were on oral contraceptives; 11.3 percent on intrauterine devices; and 12 percent on other contraceptives.

Seventeen certified nurse-midwives were serving Florida. These were replacing the "granny midwives," 85 of whom were still working in the Sunshine State. Progress in the nurse-midwife program was given impetus by a federally-funded course taught at a Jacksonville hospital by an instructor from New York City.

Under contract with the Division of Family Services, the Division of Health and county health departments conducted medical and dental screenings of children of families receiving

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assistance. During the year, the upper age limit was raised from six years to 20, tripling the approximately 90,000 children on the rolls at the time of the change. Over 45,000 children were screened. Of these, 21,540 were referred to other agencies for evaluation and treatment.

Over 411,500 of all Florida's children were screened for vision problems. Some 30,000 were referred for additional attention and correction.

County health departments gave hearing tests to 209,800 children and 7,255 were referred for additional examination and attention.

Sickle cell anemia clinics screened 16,819 individuals; 4,930 had abnormal hemoglobins.

Lofenalac and nutritional counseling were given for 49 infants as a prevention for the development of mental deficiency in cases of phenylketonuria (PKU).

Forty-two state and county nutritionists served some 84,000 persons and made over 3,600 visits to food service facilities in many types of institutions and programs. Counseling was given to pregnant women, school-age

mothers, children, people with chronic diseases, and low income families. The nutritionists also worked with federally-subsidized programs which supplied food for low income, pregnant or lactating women and for their infants and children.

Fluoridation, Mouth Rinse and Dentists

Despite the fact that over two million Floridians are served by public water supplies which have natural or controlled fluoride, Florida ranks 35th nationally when it comes to fluoridation. A school fluoride mouth rinse program was inaugurated in 69 schools with 31,807 children participating.

Of the 67 county health departments in the state, 31 lacked dentists or equipment to provide dental services. Thirty-six are equipped to provide dental care, but at the end of 1973, 10 of these had the equipment but no dentist.

Typhoid, Immunizations and Venereal Disease

It was a very bad year in Florida when it came to typhoid.

The state experienced an outbreak in a south Dade County migrant labor camp that drew nationwide attention. It was one of the largest outbreaks in decades. Over 200 cases of typhoid were reported. Investigations showed that a potable water supply serving the camp was the only common source which could have caused the outbreak.

Several other reported diseases showed increases: infectious hepatitis, up 44 percent; impetigo, up 78 percent; streptococcal infection, up 50 percent; influenza and influenza-like diseases, up 47 percent; and aseptic meningitis, up 22 percent. Hepatitis flourished among young children in nursery schools and kindergartens.

Of more than 210,000 Florida children enrolled in kindergarten and first grade, 86.1 percent was fully immunized against diphtheria, whooping cough (pertussis), tetanus, measles, rubella (German measles) and polio.

Assessments of immunizations of two-year-old children were completed in 23 larger counties. Although overall 96 percent of the children had been started on their immunizations, about 25 percent needed DPT (diphtheria-pertussis-tetanus) and

polio vaccines; 40 percent needed measles vaccine; 50 percent needed rubella vaccine. Intensive immunization programs were conducted in neighborhoods of 16 counties to eliminate clusters of unimmunized children.

Three children in one family became ill with diphtheria. They attended one school where the immunization law had not been enforced. Over 4,000 persons had to be immunized because of these infections and no additional cases developed.

Twenty-eight students in Suwannee County went on an expedition into a cave inhabited by bats infected with histoplasmosis (an infection involving a fungus that causes respiratory disease). Eight of the students were hospitalized for histoplasmosis; others with similar though milder respiratory symptoms were believed to have the same infection.

Tuberculosis continued to be treated in out-patient clinics through the use of drugs. The average hospital stay of patients in 1973 was 60 days, as compared to five months just four years ago. Treatment concepts changed from hospital-based to community-based and 35 percent of all new cases discovered in 1973 were treated in the home environment. Of the 1,584 new patients, 80 percent were from the 18 most populous counties, which had 84 percent of the state's population.

Division of Health and county health department personnel performed over 73,000 tuberculin skin tests on students and school personnel in 38 counties. Over 1,000, or 1.5 percent, showed positive reactions.

The two major venereal diseases showed increases. Gonorrhea jumped 22 percent over 1972 with a total of 52,528 reported cases. This was almost five times the number of cases reported 10 years ago. There were 1,963 cases of infectious syphilis, an increase of 11 percent over 1972 and 44 percent over 1963.

Gonorrhea culture screening programs were extended by the county health departments into health clinics, private physicians' offices, hospital clinics, maternity clinics. student health centers, correction centers, and community health centers. Over 436,000 cultures were performed. Of these 19,777 were positive for gonorrhea.

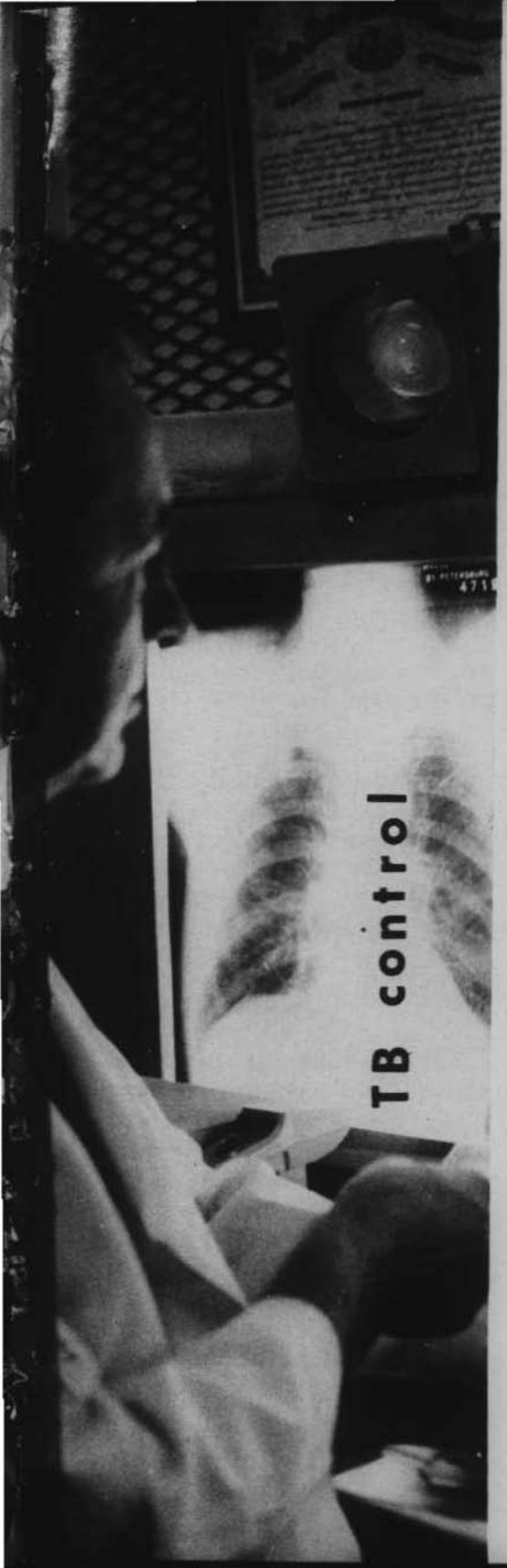
Rabies, Encephalitides and Bobcats

Rabies and the encephalitides continued to be concerns of the Division of Health.

Three human cases of Eastern Equine Encephalitis were reported in Seminole, Alachua and Madison Counties. One case was fatal. Two human cases of leptospirosis occurred. One case was related to swimming in or drinking probably contaminated water; the other person owned a dog which possibly may have given him the disease. Fifty-nine cases were reported in large animals and 146 in small animals.

The Division of Health staff bled sentinel chicken flocks and dove flocks in Orange, Dade, Hardee, Polk, Hillsborough and Pinellas Counties and discovered no activities of Venezuelan, Western, St. Louis or Eastern encephalitis in those counties.

A bobcat was trapped in Alachua County and donated to a zoo at the Santa Fe Junior College in Gainesville. The cat became ill and inflicted bites and scratches on two zoo biologists who had to be treated for rabies infection. In one three-month period, another bobcat, a rac-



health services, coordinated home care programs, nutrition counseling and education, rehabilitation and restorative services, and improved health facilities.

Cancer, the second leading cause of death among children and adults over 45 years, caused an estimated 16,623 deaths in 1973. Major sites of the disease were the digestive system of both men and women, the lungs of men and the breasts of women.

Papanicolaou smears for cervical cancer were made by public health agencies on 83,867 medically indigent women. Over 134 cases of cervical cancer were discovered and referred for treatment. Several hundred women were discovered to have abnormal tissue which would become cancerous and were treated.

There were an estimated 1,561 deaths from diabetes, an increase of 12.9 percent over 1972. Some 5,000 indigent patients received insulin from a program administered by the Division of Health. Over 49,000 persons were screened for diabetes through the county health departments and some 1,490 were referred for follow-up.

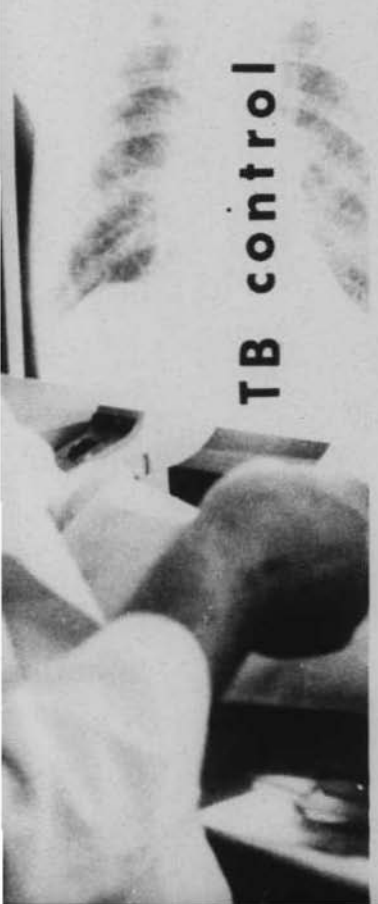
Eight full-time glaucoma screening centers were in opera-

coon and a bat were trapped in Alachua County that were discovered to have rabies. Forty-three cases of the disease were reported in Florida animals in 1973.

An epizootic (epidemic in animals) resembling rabies was observed among raccoon and fox populations of Sarasota County. Eight foxes and 114 raccoons were handled by the county's animal control program and a form of "canine distemper" was detected. This appeared to be spreading into neighboring counties.

The Aged, Cancer, Diabetes and Glaucoma

Florida's population of senior citizens continues to grow. Over 1.2 million, or 15.7 percent, of the 7.8 million Florida residents are over 65 years of age. The common causes of disability and morbidity among the older persons were arthritis, stroke and accidents (which result in broken hips), heart disease, emphysema, chronic bronchitis, osteoporosis (fragile bones) and blindness. Health programs aimed at helping the aged include: health profile screening programs, home



TB control

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tion to test high-risk population. Over 57,000 persons were screened and 1,054 were referred for diagnostic evaluation.

The Kidney Disease Program was transferred to the Division of Health. Over 600 end-stage kidney disease patients were treated in the 25 chronic kidney dialysis centers; 100 kidney transplants were performed in the state's three transplant centers.

Hospital Beds, Home Health Services and Medicare

Facilities for the care of the sick were expanded during 1973. Two old hospitals ceased operation. Twelve new ones opened and at the end of the year, Florida had 224 hospitals with a bed capacity of 39,888 and 2,515 bassinets.

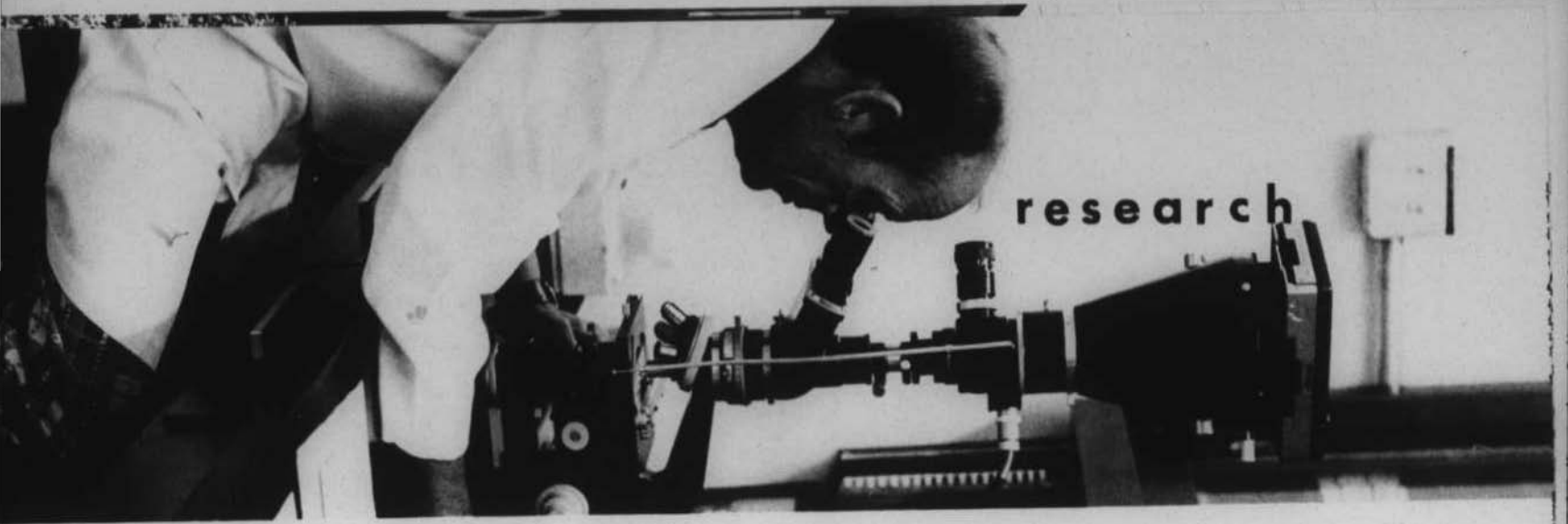
At the end of the year, Florida also had 292 nursing homes, homes for the aged and special service homes with 45,400 beds. The Division of Health continued to inspect and certify hospitals, skilled nursing facilities, home health agencies, rehabilitation clinics and laboratories as providers of services for Medicare patients. Under a contract with the Division of Family

Services of the Department of Health and Rehabilitative Services, it also surveyed nursing homes for the Medicaid program. Hospitals which qualified for Medicare automatically qualified as providers of Medicaid services — should they wish to participate.

Five health maintenance organizations were issued "certificates of authority" by the Florida Insurance Department. The Division of Health reviewed plans of operations of the organizations and evaluated the professional services given to subscribers.

The Division of Health also helped 47 home health agencies, 12 rehabilitation agencies, and 60 physical therapists to help obtain certification as providers of home nursing care under the Medicare program.

Plans for 90 hospitals and 38 nursing homes were approved by the Division of Health during 1973. These facilities had a total construction cost of $226.9 million, a 59 percent increase over the 1972 figures of $133.6 million. The plans approved were for new facilities, expansions and renovation.


research

3.9 Million Examinations, Guthrie Tests and Shellfish Poison

The workload of the Division of Health's central and regional and two county laboratories continued to expand with 3.9 million examinations carried out in 1973 — an increase of 12 percent over 1972. Increases were shown in gonorrhea and enteric cultures, water testing, clinical chemistry, hemoglobinopathy (sickle cell), and urine screening. Decreases were shown in dairy products, food and tuberculosis examinations.

During the typhoid outbreak in south Dade County, emergency laboratories gave support to the intensive field studies. Within a very short span of time, the Miami and Tampa Regional Laboratories and Central Laboratory in Jacksonville processed several thousand stool, water and blood specimens. The Epidemiology Research Center in Tampa contributed special high volume filter apparatus for sampling suspected environmental and well water supplies from the migrant camp.

Several unusual cases of shellfish poisoning occurred in the Gulf Coast area where people consumed clams harvested from non-approved waters off Sarasota County beaches. Laboratory examinations confirmed that *ciguatera* toxin was found in the clams as a result of the "red tide" occurring in the vicinity.

Over 534,000 gonorrhea cultures were made, a 60 percent increase over 1972. Syphilis serology performed over 1.1 million examinations, a 6.2 percent increase over the previous year.

Phenylketonuria (PKU) Guthrie tests performed during the year totaled 76,337. Ten children were discovered to be positive for PKU; three of these had moved into the state during the year. PKU, if not detected in time, could cause mental retardation.

A total of 598 laboratories (including independent, hospital, blood bank, plasmorphoresis and public health facilities) was licensed during the year; 7,480 clinical laboratory personnel were issued permits. A total of 2,684 law enforcement officers was issued permits under the Implied Consent Law, the majority of whom were alcohol-breath testing technicians.

Trailer parks increased by 293 to 4,505. These parks had spaces for 261,618 trailers. Permits were issued to 299 migrant labor camps which could hold 43,000 persons; and 11 recreational camps for some 17,000.

About 255 different products were removed from the markets under the product safety program. Over 6,900 bedding inspections were made and over 3,800 items were found in violation. An increase of 3,000 violations occurred because of the change in the inspection procedures under the "truth in labeling" law.

Following the typhoid outbreak in Dade County, the water supplies of several common carriers were found to have unsatisfactory bacteriological quality by the U.S. Environmental Protection Agency. Miami Beach's water supply was also found to have a high bacterial count and was placed on "boiled water" status until temporary chlorinators could be put in place.

Plans for 2,168 public water engineering projects and 884 wells were approved. Public swimming pools plans approved and processed totaled 1,823. These had an estimated cost of

Septic Tanks, Trailer Parks and Public Water Systems

The environmental health work was marked by the return of the septic tank program to the Division of Health following action by the Legislature and the signing of an agreement by the Secretary of the Department of Health and Rehabilitative Services and the Secretary of the Department of Pollution Control.

Sanitarians made over 244,000 visits to the state's

* 25,220 eating and drinking establishments;
* 9,947 groceries and meat markets;
* 1,425 food processing plants; and
* some 2,000 other food and milk establishments.

The health cards, which had been issued by county health departments for many years in the interest of better health and disease control, were replaced by training courses for managerial level personnel of food service establishments.

$31.1 million. The average cost was $17,000 per pool.

Research by the Epidemiology Research Center demonstrated that viruses will pass through the soil mantle into the ground water when treated sewage is spread over the land. This could necessitate some changes in waste water treatment practices.

Shellfish production totaled 130,000 pounds of clams, 44,872 pounds of bay and calico scallops, 13.3 million pounds of blue crab, and 1.8 million pounds of stone crab. Franklin County produced 85 percent of the state's 2.6 million pounds of oysters. A proposal of the U.S. Corps of Engineers to build several dams and locks and the industrialization of the Apalachicola River could affect the future production of oysters in Franklin County.

Mosquitoes and Dog Flies

Mosquitoes were on the increase during 1973. Light trap operations showed a 15 percent increase in mosquitoes over 1972. The lack of properly maintained control dikes and impoundments, along with mild

winters, could have resulted in the production of more mosquitoes. New regulations of the Florida Internal Improvement Trust Fund's board of directors require additional maps and supporting data for each ditch and dike to be constructed and maintained. This action forced counties and mosquito control districts to abandon needed maintenance of ditches and dikes which control mosquitoes.

State and local expenditures totaled $13.2 million for mosquito control. Sanitary landfills expenditures totaled $3.9 million, and $16,359 was spent on dog fly control.

Unseasonable flights of dog flies occurred in June on the beaches of West Florida, followed by major outbreaks in August. This caused a disruption of the tourist industry at the height of the West Florida season. Research has revealed that the dog flies can fly 70 miles from breeding places on farm lands to the north of the beaches, refuting the theory that the seaweed and eelgrass of the bays and lagoons of the area are the major breeding places. At times the dog flies were so bad that 100 to 200 biting flies would land in one minute on persons in fishing boats out in the Gulf. The flies were such pests that the boats would have to return to port. The outbreaks were abated by aerial spraying of beach areas but this at best was only temporary control to protect the tourist industry.

Nuclear Reactors, X-Rays and Carbon Monoxide

Florida's second nuclear reactor plant built at Turkey Point to produce electricity began operation (achieved criticality) in 1973. Three more are under construction (one at Crystal River and two at St. Lucie) and the Jacksonville Electric Authority issued a letter of intent to buy two offshore nuclear power plants. The Division of Health continued environmental sampling around these plants. This activity was also carried out in Jackson County because an Alabama utility company is planning a nuclear reactor plant 12 miles from the Florida border.

A total of 666 licenses for use of radioactive materials was

issued, including those in medical fields (private and hospitals) and in academic, industrial, civil defense, and special nuclear facilities.

Of the 11,126 x-ray machines in use in Florida, 93 percent are in the offices of physicians and dentists and others who have insufficient training in radioactive practice and safety.

Florida signed an agreement with other Southern states to participate in giving assistance to a state when a radiation emergency occurs that may be outside the capabilities of that state to control.

The Occupational Health Laboratory assisted the county health departments by testing air quality sources of 34 suppliers of compressed air to scuba divers. Such services were also supplied to fire departments, rescue units and the U.S. Navy. The carbon monoxide levels were also determined in motor vehicle inspection stations. Excessive concentrations were found in a number of stations — especially in enclosed cashiers' offices and the Division of Health recommended improvements of existing ventilation systems.

Emergency Medical Services and Disaster Hospitals

The emergency medical services were given a high priority during 1973 by the Legislature. Comprehensive emergency medical services legislation was passed that gave Florida one of the most complete emergency medical services law in the nation. It was aimed at upgrading emergency medical technicians' training and the communications, equipment and ambulance requirements.

The Federal Emergency Medical Stockpile Program was terminated and the Division of Health acquired 41 packaged disaster hospitals, three natural disaster hospitals, and 54 hospital reserve disaster inventories. The state health agency will continue to administer the program but will not replace outdated items in the inventories.

Films, Books, Pamphlets and Training

Health education continued to supply the Division of Health

and county health departments with pamphlets, films, exhibits and library services. The use of audio-visual materials was up 11 percent over 1972. The number of movie films, film strips, slide series, and other forms of audio-visuals reached 2,291 individual titles.

The medical library collection totaled 28,136 books and journals. The Division of Health distributed over 441,000 pieces of literature from the pamphlet room, which stocked some 425 different items. Charts, maps, graphs and illustrations were made for publications, films, slides, certificates and posters.

Twenty-nine Division of Health and county health department employees were given educational leave in order to secure additional training or advanced degrees.

Projects, Money and Health Workers

Money for 73 special projects totaled $21.6 million for 1973. Funds came from the Federal Government, state government, Governor's Highway

Safety Commission, private corporations, municipal governments and private estates. The Division of Health projects supported family planning, migrant health, maternity and infant care, Cuban Refugee Services, aid for physically handicapped, venereal disease control, sickle cell screening and education, mosquito control, food protection, dog fly control, and radiation monitoring — just to name a few of the larger projects.

Medical and health services were given to the people of Florida by 12,419 practitioners of the healing arts who were registered with the Division of Health. These included physicians, osteopaths, chiropractors, naturopaths, podiatrists, chiropodists, and physiotherapists.

Total expenditures for public health in Florida, for the fiscal year ending June 30, 1973, were $64 million, of which 72 percent went for salaries of 4,327 health workers (including 1,038 state employees and 3,289 in county health departments) and the cost of other personnel giving part-time health services. Of this amount, the state contributed 45 percent, local governments, 26 percent, and the Federal Government, 29 percent.

The Never-Ending List

Children, cultures, contraceptives, and cervical cancer

Diabetes, diphtheria, disaster hospitals and dog flies

Heart, hypertension, hospitals, histoplasmosis, hepatitis and health cards

* * * * *

The list continued but it contains items that affect you, your health and that of your family, friends and neighbors.

Public health is not just a list of items. It's people working to help other people to better health and a sense of well-being. This glimpse into the Division of Health's *Annual Report* of 1973 will tell you that we are working hard in your behalf.

FLORIDA

HEALTH NOTES

VOLUME 66, NO. 7 JULY, 1974

The Importance of Vital Statistics in Public Health

FINAL RESTING PLACE (Cover photo) – The cemetery holds the remains of our mortal bodies and the vaults of the Division of Health hold the records of our births, deaths, marriages and divorces.

BEGINNING AT BIRTH – This new-born infant's birth (1) is recorded first in the files of the county health department and then in the vaults of the Division of Health (2). Copies may be obtained by specific individuals (3), and health and social agencies of state and federal governments.

Birth and Death! Birth and Death! Birth, the greatest blessing bestowed on an individual, and death, the explanation point at the end of life, are the inevitable first and last events of each member of the human race. These events are recorded in the today's advanced societies.

Record for what purpose?

Births and deaths, along with marriages and divorces, are vital records that mark important events in an individual's life. These records are needed by the individual for many reasons, including the basis of public health practices.

The Importance in Public Health of Vital Statistics

Such records are important in

*determining the question of parentage, heredity, legitimacy, personal identity, property rights, inheritance and citizenship;

*planning for the future of a community;

*expansion of business and industry;

*building of schools;

*determining the course of epidemics and diseases.

In 1910, a labor leader said, "The registration of births lies at the basis of vital statistics, the necessary foundation of modern health organization, and hence is indispensable for the safety of the lives of children as well as the older members of the communities in cases of preventable diseases . . ."

The registration of births and deaths is of the greatest importance, not only to individuals, but also to the public at large. In almost every relationship of life, an official record of birth — the first and most important event in the life of an individual — is not only of the utmost importance, but is indispensable.

Likewise, death certificates are of great value in determining the relative information of causes of death, in establishing priorities for control programs, in identifying deaths by other than natural causes, in confirming claims for insurances and pensions, and in the study of genealogy.

This issue of *Florida Health Notes* will tell you what the vital records are, about the history of the collection of vital statistics, the recording process of birth and death certificates, marriage licenses and divorce records, and fetal death certificates. It will also tell you how important vital statistics are to the Division of Health of the Department of Health and Rehabilitative Services in helping to determine measures which should be used to protect the health of the people of Florida.

Bookkeepers of Humanity

Dear Division of Health:

". . . I am writing to get me (sic) and my husband's birth certificate. I do not have any birth record of myself. Both of my parents have passed and I don't have any older relatives. I'm not sure how they spelled my name . . ."

". . . Please send me a copy of my birth certificate. I need it for a passport application and job requirement . . ."

". . . I am writing to request a birth certificate. This is for a court matter so as soon as I can get it the better for all concerned . . ."

The Division of Health gets hundreds of letters each week concerning the birth, death, marriage and divorce records of people.

FLORIDA HEALTH NOTES

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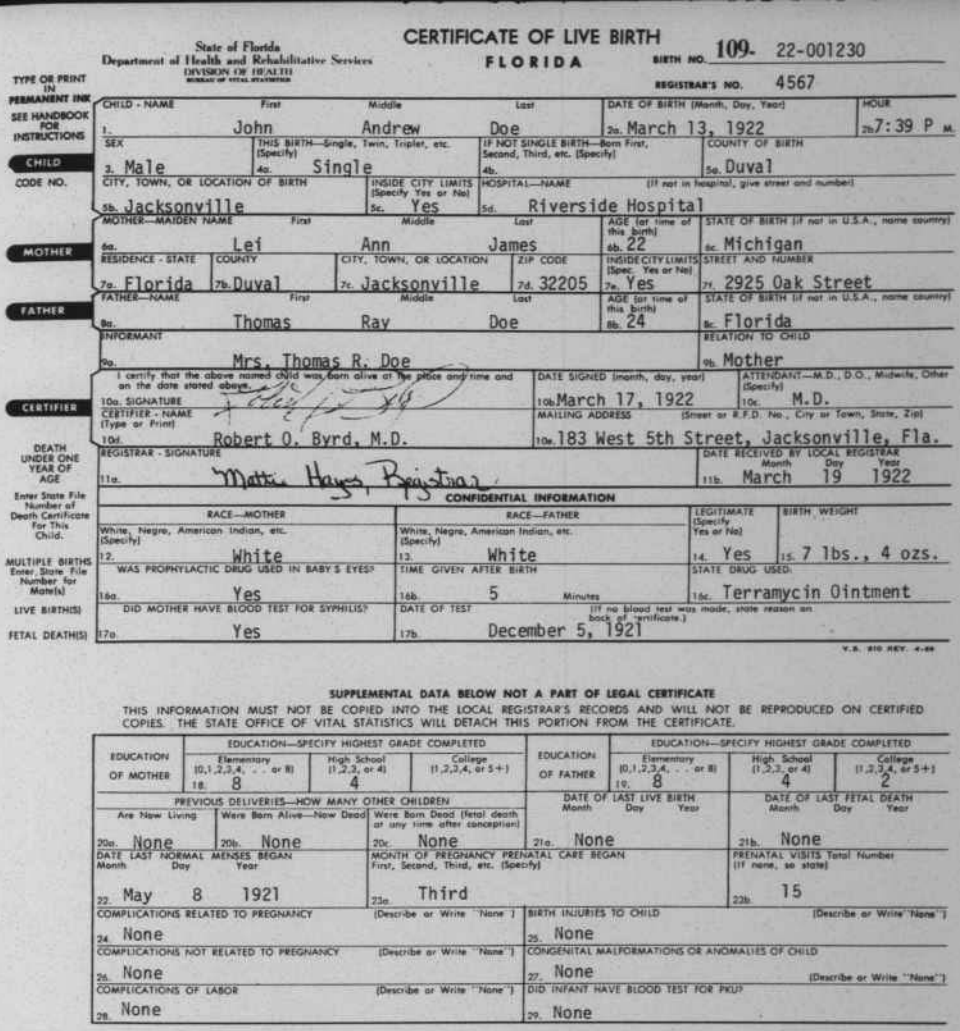


State of Florida
Department of Health and Rehabilitative Services
DIVISION OF HEALTH
BUREAU OF VITAL STATISTICS

CERTIFICATE OF LIVE BIRTH
FLORIDA

BIRTH NO. 109- 22-001230
REGISTRAR'S NO. 4567

TYPE OR PRINT IN PERMANENT INK
SEE HANDBOOK FOR INSTRUCTIONS

CHILD

1. CHILD - NAME: First: John; Middle: Andrew; Last: Doe
2a. DATE OF BIRTH (Month, Day, Year): March 13, 1922
2b. HOUR: 7:39 P M.
3. SEX: Male
4a. THIS BIRTH—Single, Twin, Triplet, etc. (Specify): Single
4b. IF NOT SINGLE BIRTH—Born First, Second, Third, etc. (Specify):
5a. COUNTY OF BIRTH: Duval
5b. CITY, TOWN, OR LOCATION OF BIRTH: Jacksonville
5c. INSIDE CITY LIMITS (Specify Yes or No): Yes
5d. HOSPITAL—NAME (If not in hospital, give street and number): Riverside Hospital

MOTHER

6a. MOTHER—MAIDEN NAME: First: Lei; Middle: Ann; Last: James
6b. AGE (at time of this birth): 22
6c. STATE OF BIRTH (If not in U.S.A., name country): Michigan
7a. RESIDENCE - STATE: Florida
7b. COUNTY: Duval
7c. CITY, TOWN, OR LOCATION: Jacksonville
7d. ZIP CODE: 32205
7e. INSIDE CITY LIMITS (Spec. Yes or No): Yes
7f. STREET AND NUMBER: 2925 Oak Street

FATHER

8a. FATHER—NAME: First: Thomas; Middle: Ray; Last: Doe
8b. AGE (at time of this birth): 24
8c. STATE OF BIRTH (If not in U.S.A., name country): Florida

9a. INFORMANT: Mrs. Thomas R. Doe
9b. RELATION TO CHILD: Mother

CERTIFIER

I certify that the above named child was born alive at the place and time and on the date stated above.
10a. SIGNATURE: [signature]
10b. DATE SIGNED (month, day, year): March 17, 1922
10c. ATTENDANT—M.D., D.O., Midwife, Other (Specify): M.D.
10d. CERTIFIER - NAME (Type or Print): Robert O. Byrd, M.D.
10e. MAILING ADDRESS (Street or R.F.D. No., City or Town, State, Zip): 183 West 5th Street, Jacksonville, Fla.

DEATH UNDER ONE YEAR OF AGE

11a. REGISTRAR - SIGNATURE: Mattie Hayes, Registrar
11b. DATE RECEIVED BY LOCAL REGISTRAR (Month, Day, Year): March 19 1922

Enter State File Number of Death Certificate For This Child.

CONFIDENTIAL INFORMATION

MULTIPLE BIRTHS Enter State File Number for Mate(s)

12. RACE—MOTHER (White, Negro, American Indian, etc. (Specify)): White
13. RACE—FATHER (White, Negro, American Indian, etc. (Specify)): White
14. LEGITIMATE (Specify Yes or No): Yes
15. BIRTH WEIGHT: 7 lbs., 4 ozs.

LIVE BIRTH(S)

16a. WAS PROPHYLACTIC DRUG USED IN BABY'S EYES?: Yes
16b. TIME GIVEN AFTER BIRTH: 5 Minutes
16c. STATE DRUG USED: Terramycin Ointment

FETAL DEATH(S)

17a. DID MOTHER HAVE BLOOD TEST FOR SYPHILIS?: Yes
17b. DATE OF TEST (If no blood test was made, state reason on back of certificate.): December 5, 1921

V.S. 210 REV. 4-58

SUPPLEMENTAL DATA BELOW NOT A PART OF LEGAL CERTIFICATE

THIS INFORMATION MUST NOT BE COPIED INTO THE LOCAL REGISTRAR'S RECORDS AND WILL NOT BE REPRODUCED ON CERTIFIED COPIES. THE STATE OFFICE OF VITAL STATISTICS WILL DETACH THIS PORTION FROM THE CERTIFICATE.

EDUCATION OF MOTHER	EDUCATION—SPECIFY HIGHEST GRADE COMPLETED		
	Elementary (0,1,2,3,4, . . . or 8)	High School (1,2,3, or 4)	College (1,2,3,4, or 5+)
18.	8	4	

EDUCATION OF FATHER	EDUCATION—SPECIFY HIGHEST GRADE COMPLETED		
	Elementary (0,1,2,3,4, . . . or 8)	High School (1,2,3, or 4)	College (1,2,3,4, or 5+)
19.	8	4	2

PREVIOUS DELIVERIES—HOW MANY OTHER CHILDREN			DATE OF LAST LIVE BIRTH (Month, Day, Year)	DATE OF LAST FETAL DEATH (Month, Day, Year)
Are Now Living	Were Born Alive—Now Dead	Were Born Dead (fetal death at any time after conception)		
20a. None	20b. None	20c. None	21a. None	21b. None

DATE LAST NORMAL MENSES BEGAN (Month, Day, Year)	MONTH OF PREGNANCY PRENATAL CARE BEGAN (First, Second, Third, etc. (Specify))	PRENATAL VISITS Total Number (If none, so state)
22. May 8 1921	23a. Third	23b. 15

COMPLICATIONS RELATED TO PREGNANCY (Describe or Write "None")	BIRTH INJURIES TO CHILD (Describe or Write "None")
24. None	25. None
COMPLICATIONS NOT RELATED TO PREGNANCY (Describe or Write "None")	**CONGENITAL MALFORMATIONS OR ANOMALIES OF CHILD (Describe or Write "None")**
26. None	27. None
COMPLICATIONS OF LABOR (Describe or Write "None")	**DID INFANT HAVE BLOOD TEST FOR PKU?**
28. None	29. None

BIRTH CERTIFICATE — This certificate marks John Andrew Doe's birth. Sections of the certificate are confidential. Other information is sought by the Division of Health for public health reasons.

These letters come from throughout Florida, from the other 49 states, and from many foreign countries. Like Florida, most of the other states have their registrars of vital records in their state or provincial health departments. This is the all-important central registration system established in every state. The deputy registrar in each county health department collects the birth, death and fetal death certificates and after recording them, sends the originals on to the headquarters of the Division of Health in Jacksonville. The certificates are reviewed and checked for missing items, then

numbered and indexed, and bound in volumes to be filed permanently in a fireproof vault.

The facts on these certificates are coded, tabulated, charted, graphed and analyzed to determine the trends in births, deaths, diseases, population changes, social aspects of life (such as number of divorces as compared to marriage, size of families, ages of those who marry). The effectiveness and accuracy of the work of the Division of Health's Bureau of Vital Statistics and Public Health Statistics Section depend largely on the efforts of hundreds of physicians, nurses, funeral directors, court clerks, local registrars and others who daily fill out certificates of vital records.

Small Village or Nation

The keeping of vital statistics may pertain to the smallest village or to a nation. Basically there are two types of information kept about a population.

*Census enumeration — counting of people and their characteristics as of one moment in time.

*Vital statistics — the continuous registration of life changes as they occur.

TO ENTER SCHOOL — John Andrew Doe has to have a certified copy of his birth certificate in order to enter school. He will also need it when he starts participating in school athletics.

The idea of census is not new. The Bible records an early census: As the Lord commanded Moses, so he numbered them in the Wilderness of Sinai. (Numbers 1:19)

But Moses only counted males over 20 who were fit to "draw the sword." Our interests have passed the time where only the warriors were counted. Ancient scrolls have been replaced by electronic data processing machines, microfilms and photostats. Today we count every individual and the facts about him — as for example whether he has a television set, two cars and three bathrooms.

The United States throughout the 19th Century tried to collect vital statistics through its census which was required by the Constitution to be taken every 10 years. But these statistics were for the most part untrustworthy, especially in respect to the recording of the causes of death.

The recording of vital statistics is also an old custom but time has proven that it is difficult to keep accurate and continuous records. In Europe the medieval churches required their priests to engage in elementary bookkeeping. Ceremonies, such as baptisms, burials and weddings, were ordinarily paid for and the records of these payments in the parish churches produced a rudimentary register. However, the priests recorded the cermony rather than the event and the entries were limited to parishioners, omitting the nonconformists and others not submitting to the ceremonies.

In the 17th Century, efforts were made to improve the church records, mainly by ordinances. The first systematic parish register system was established in Sweden in 1608. Other systems followed in Quebec, Finland and Denmark. The purpose and control was still religious. The consolidation of the registrations of vital statistics for an entire nation was not attempted until the 18th Century in France and the 19th Century in England.

The Massachusettes Bay and New Plymouth colonies became the first governments to require that the actual events of births and deaths be recorded, rather than the ceremonies, and that the registration be carried out by civil authorities. The practices did not take root in the New World because the long process of exploring and settling the continent hindered the establishment of a complete registration. It was difficult to keep records of people who were moving westward; babies were born in covered wagons; people died

and were buried along the trails and there were no registrars to record the births and deaths.

Vital Statistics in Florida

The modern movement to collect vital records in the United States did not begin in earnest until a "Death Registration Area" comprising 10 states, the District of Columbia and a few cities was established in 1900.

The Florida Legislature passed a vital statistics law in 1899 requiring birth and death registration but the law proved ineffective since it did not provide for the appointment of local registrars to collect the vital records. The first vital records in Florida date back to 1594 — after the founding of St. Augustine. Other communities (Key West, Jacksonville, Orlando and Pensacola), recorded certain vital statistics from as early as 1865. These records are now stored in the vaults of the Division of Health.

The "Model Vital Statistics Act" which provided uniformity among the various states, was passed in Florida by the Legislature in 1915. An effective system of vital statistics registration was put into effect on January 1, 1917. The first system used local registrars in the various cities, towns and rural voting precincts of the state. Several hundred registrars had been appointed by the time the system went into effect. It wasn't until 1946 to 1950 that the system was reorganized so that the county health departments were made responsible for the collection of vital records.

Legislative acts of 1927 provided for the centralization of marriage and divorce records. The county judges were required to record all marriages in their county records, give the date of filing, and forward the original licenses to the State Board of Health. Likewise, the clerks of the circuit courts were required to transmit to the State Board of Health a record of each decree of divorce granted by the courts.

The Director of the Division of Health is ex officio registrar and is responsible for the system which keeps Florida's vital statistics. Each county health director is an ex officio local registrar and each county health department has a deputy registrar who is responsible for the collection and accuracy of the vital records.

TO SEE VENICE – In order to travel to distant lands, John Andrew Doe needs a certified copy of his birth certificate to obtain a passport.

Filing the vital records is important. Those who attend a birth are required by law to file the birth certificate with the county health department within 10 days. The funeral director is responsible for filing the death certificate for any cases under his jurisdiction within three days. All certificates are then sent to the Division of Health headquarters on the fifth day of the following month. However, a birth certificate is not considered late until a year has passed. Some of the county deputy registrars file all of their certificates on time but on an average, the overall state complete reporting is 95.8 percent on time.

The Record Begins — The Birth Certificate

Dear Division of Health:

". . . my fiance and I are living together and having decided to make it legal, want very much to get married. We both need copies of our birth certificates . . ."

". . . my son will be going to kindergarten this fall and I was told I need a birth certificate to get into school . . ."

". . . please send my birth certificate as soon as possible. I want to take up driving and I would need this for some of my other bussiness (sic) affairs. I truly hope this won't take up much of your time . . ."

People need birth certificates for many reasons:

*entering school;

*obtaining a driver's permit;

*registering for voting;

*obtaining employment;

*enlisting in the military services;

*getting married;

*obtaining a passport;

*collecting insurance;

*proving relationships, ages and places of birth in cases of inheritances;

*certifying one's age for Social Security benefits and/or other pensions.

The physician or midwife attending the birth of a child is required by law to prepare and file the birth certificate within 10 days after the birth. This applies to live births, still births, premature births and miscarriages after the fifth month of pregnancy.

All of the questions on the birth certificate are carefully chosen to contribute to the knowledge of what children are like who are being born in the United States — and what their parents are like. A standard form used in all states makes it possible to secure a high degree of uniform and comparable data on a variety of essential points.

Public health authorities want to know what proportion of children is born in hospitals and from the recorded certificates we can arrive at an exact figure. The answer to whether the mother resided inside the city limits shows the geographical distribution of births in city and rural areas and supplies information on the movement of populations to the suburbs. Supplemental questions, such as the amount of education of the mothers and fathers, the number of previous births, the month of pregnancy that prenatal care began, and whether there were birth injuries to the child, give public health authorities information on the profile of the births. This latter information is detached from the birth certificate after it is filed and is not reproduced on certified copies.

Other information, which is kept confidential and released only to the person registered when he or she reaches 18 years of age, or on a court order, includes "race or color," question of legitimacy, whether the mother was given a blood test for syphilis, whether a prophylactic drug was used in the baby's eyes, and the weight of the infant.

The questions on the length of pregnancy, the child's weight at birth and a description of any birth injury or congenital malformation are of fundamental interest to medical research and public health officials who want to find out the causes of some of the handicaps with which many babies are born.

A Confidential Document

The birth certificate is a confidential document of the state. A certified **photostatic copy**, without the medical and health details and confidential information, is available **only** to the individual concerned, if he is 18 years old; also if a minor, to either parent, guardian, legal representative, and certain health and social agencies of the state and federal government. This certified copy bears the

---

MARRIAGE LICENSE – John Andrew Doe's marriage to Ida Do Care was recorded by the clerk of the county court and the original certificate filed with the Division of Health.

MARRIAGE LICENSE
STATE OF FLORIDA

COUNTY NO. 27 STATE FILE NO. 42-5913

APPLICATION TO MARRY

MALE PERSONAL DATA

1. Name of Male: John Andrew Doe
2. Race: White
3. Usual Residence of Male: Jacksonville, Duval, Florida
4. DATE OF BIRTH: March 13, 1922
5. NUMBER OF THIS MARRIAGE: 1
6A. DATE LAST MARRIAGE ENDED (IF PREVIOUSLY MARRIED)
6B. LAST MARRIAGE ENDED BY (SPECIFY DEATH, DIVORCE OR ANNULMENT)
7. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY): Florida

FEMALE PERSONAL DATA

8. Name of Female: Ida Do Care
Maiden name if different:
9. Race: White
10. Usual Residence of Female: Pensacola, Escambia, Florida
11. DATE OF BIRTH: February 14, 1924
12. NUMBER OF THIS MARRIAGE: 1
13A. DATE LAST MARRIAGE ENDED (IF PREVIOUSLY MARRIED)
13B. LAST MARRIAGE ENDED BY (SPECIFY DEATH, DIVORCE OR ANNULMENT)
14. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY): Michigan

AFFIDAVIT OF FEMALE AND MALE

WE THE APPLICANTS NAMED IN THIS CERTIFICATE, EACH FOR HIMSELF, STATE THAT THE FOREGOING INFORMATION IS CORRECT TO THE BEST OF OUR KNOWLEDGE AND BELIEF, THAT NO LEGAL OBJECTION TO THE MARRIAGE NOR TO THE ISSUANCE OF A LICENSE TO AUTHORIZE THE SAME IS KNOWN TO US AND HEREBY APPLY FOR LICENSE TO MARRY.

15. Male (Sign full name): John Andrew Doe
16. Subscribed and sworn to before me on: April 9, 1942
17. Title: Notary Public
18. Signature: Thos Cosos
19. Female (Sign full name): Ida Do Care
20. Subscribed and sworn to before me on: April 9, 1942
21. Title: Notary Public
22. Signature: Thos Cosos

LICENSE TO MARRY

AUTHORIZATION AND LICENSE IS HEREBY GIVEN TO ANY PERSON DULY AUTHORIZED BY THE LAWS OF THE STATE OF FLORIDA TO PERFORM A MARRIAGE CEREMONY WITHIN THE STATE OF FLORIDA AND TO SOLEMNIZE THE MARRIAGE OF THE ABOVE NAMED PERSONS.

23. DATE LICENSE ISSUED: April 9, 1942
24. EXPIRATION DATE: May 8, 1942

THIS LICENSE MUST BE USED ON OR BEFORE THE ABOVE EXPIRATION DATE IN THE STATE OF FLORIDA IN ORDER TO BE RECORDED AND VALID.

25. JUDGE OF COUNTY COURT: Charles R. Mosley
26. COUNTY OF ISSUE OF LICENSE: Escambia

CERTIFICATE OF MARRIAGE

27. I HEREBY CERTIFY THAT THE ABOVE NAMED BRIDE AND GROOM WERE JOINED BY ME IN MARRIAGE IN ACCORDANCE WITH THE LAWS OF THE STATE OF FLORIDA,
ON (DATE) 4-13-42 AT (CITY OR TOWN) Pensacola FLORIDA
28A. SIGNATURE OF PERSON PERFORMING CEREMONY: R. U. Sure
28B. NAME OF PERSON PERFORMING CEREMONY (TYPE OR PRINT): R. U. Sure
28C. TITLE: Minister
28D. ADDRESS: 481 Fairfax Road, Pensacola, Florida
29. WITNESS TO CEREMONY: Cherrie Pie
30. WITNESS TO CEREMONY: Anthony C. Jordan

RECORDED

31. Date Returned: April 20, 1942
32. Recorded in Book 541 Page 398
33. CLERK OF COUNTY COURT: John Hancock

VS. 301 REV. 2-73

This license not valid unless seal of County Court appears thereon.

fascimile signatures of the State Registrar, the chief of the Bureau of Vital Statistics, and the imprint of the seal of the Division of Health. The cost of a certified copy is two dollars.

A **birth registration card,** giving the date and place of birth, race and sex of the individual and certificate number of the individual may be issued for two dollars to any qualified applicant. This short form of the birth certificate is legal proof of birth and date and place, but does not take the place of a certified birth certificate in many instances.

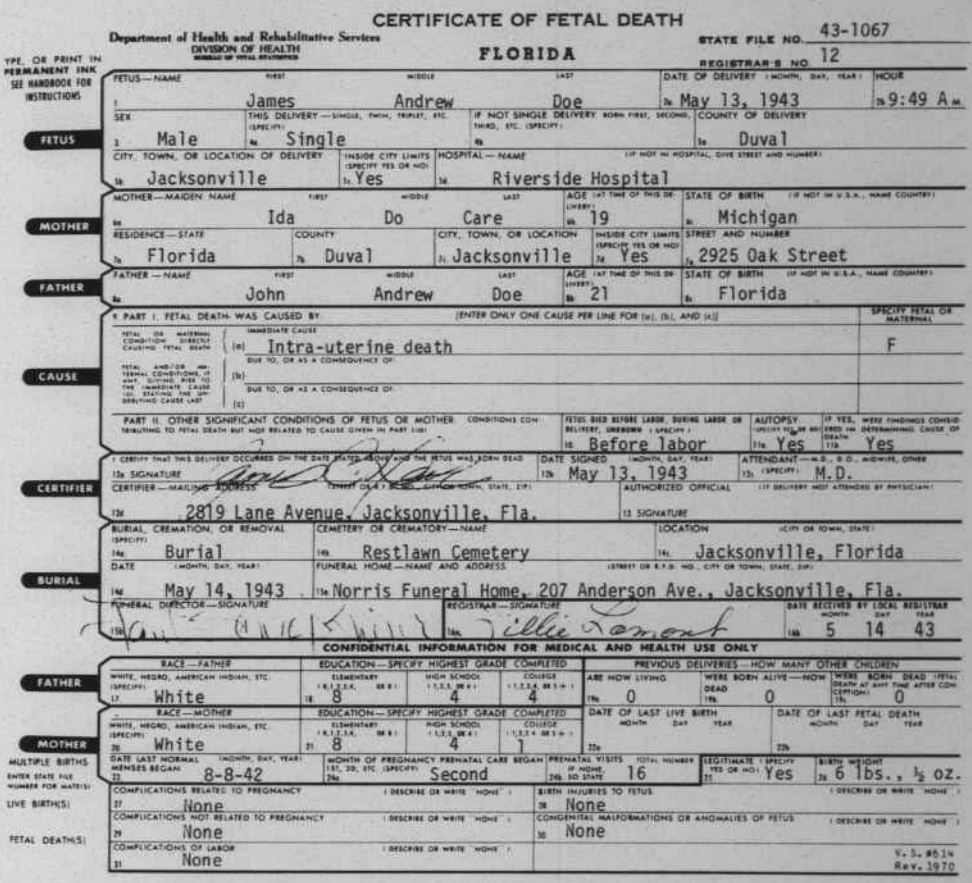
Amendments, Legitimacy and Delayed Birth Certificates

Dear Division of Health:

". . . could you please tell me what I would have to do to change the name of the baby's father on his birth certificate. I put my ex-husband's name on this baby's birth certificate so he would not find out who the real father is. But now I found out that I can't leave it this way. I have to put his natural father on his certificate . . ."

About 90 days after a birth is registered, the Division of Health sends the parents a small photocopy of the birth certificate. This gives the parent a chance to correct any minor errors on the certified

A TOAST TO HAPPINESS – John Andrew Doe's marriage was not only recorded by the state health agency, the information was used to determine certain characteristics of the population.



CERTIFICATE OF FETAL DEATH

Department of Health and Rehabilitative Services
DIVISION OF HEALTH
BUREAU OF VITAL STATISTICS

FLORIDA

STATE FILE NO. 43-1067

REGISTRAR'S NO. 12

TYPE, OR PRINT IN PERMANENT INK. SEE HANDBOOK FOR INSTRUCTIONS

FETUS

1. FETUS—NAME: James Andrew Doe
2a. DATE OF DELIVERY (MONTH, DAY, YEAR): May 13, 1943
2b. HOUR: 9:49 A.M.
3. SEX: Male
4a. THIS DELIVERY—SINGLE, TWIN, TRIPLET, ETC. (SPECIFY): Single
4b. IF NOT SINGLE DELIVERY BORN FIRST, SECOND, THIRD, ETC. (SPECIFY):
5a. COUNTY OF DELIVERY: Duval
5b. CITY, TOWN, OR LOCATION OF DELIVERY: Jacksonville
5c. INSIDE CITY LIMITS (SPECIFY YES OR NO): Yes
5d. HOSPITAL—NAME (IF NOT IN HOSPITAL, GIVE STREET AND NUMBER): Riverside Hospital

MOTHER

6a. MOTHER—MAIDEN NAME: Ida Do Care
6b. AGE (AT TIME OF THIS DELIVERY): 19
6c. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY): Michigan
7a. RESIDENCE—STATE: Florida
7b. COUNTY: Duval
7c. CITY, TOWN, OR LOCATION: Jacksonville
7d. INSIDE CITY LIMITS (SPECIFY YES OR NO): Yes
7e. STREET AND NUMBER: 2925 Oak Street

FATHER

8a. FATHER—NAME: John Andrew Doe
8b. AGE (AT TIME OF THIS DELIVERY): 21
8c. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY): Florida

CAUSE

9. PART I. FETAL DEATH WAS CAUSED BY (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).)
(a) IMMEDIATE CAUSE: Intra-uterine death
(b) DUE TO, OR AS A CONSEQUENCE OF:
(c) DUE TO, OR AS A CONSEQUENCE OF:
SPECIFY FETAL OR MATERNAL: F

PART II. OTHER SIGNIFICANT CONDITIONS OF FETUS OR MOTHER. CONDITIONS CONTRIBUTING TO FETAL DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I(a).
10. FETUS DIED BEFORE LABOR, DURING LABOR OR DELIVERY, UNKNOWN (SPECIFY): Before labor
11a. AUTOPSY (SPECIFY YES OR NO): Yes
11b. IF YES, WERE FINDINGS CONSIDERED IN DETERMINING CAUSE OF DEATH: Yes

CERTIFIER

I CERTIFY THAT THIS DELIVERY OCCURRED ON THE DATE STATED ABOVE AND THE FETUS WAS BORN DEAD.
12a. SIGNATURE:
12b. DATE SIGNED (MONTH, DAY, YEAR): May 13, 1943
12c. ATTENDANT—M.D., D.O., MIDWIFE, OTHER (SPECIFY): M.D.
12d. CERTIFIER—MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP): 2819 Lane Avenue, Jacksonville, Fla.
13. AUTHORIZED OFFICIAL (IF DELIVERY NOT ATTENDED BY PHYSICIAN)
13. SIGNATURE:

BURIAL

14a. BURIAL, CREMATION, OR REMOVAL (SPECIFY): Burial
14b. CEMETERY OR CREMATORY—NAME: Restlawn Cemetery
14c. LOCATION (CITY OR TOWN, STATE): Jacksonville, Florida
14d. DATE (MONTH, DAY, YEAR): May 14, 1943
15a. FUNERAL HOME—NAME AND ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP): Norris Funeral Home, 207 Anderson Ave., Jacksonville, Fla.
15b. FUNERAL DIRECTOR—SIGNATURE:
16a. REGISTRAR—SIGNATURE:
16b. DATE RECEIVED BY LOCAL REGISTRAR (MONTH, DAY, YEAR): 5 14 43

CONFIDENTIAL INFORMATION FOR MEDICAL AND HEALTH USE ONLY

FATHER

17. RACE—FATHER (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY)): White
18. EDUCATION—SPECIFY HIGHEST GRADE COMPLETED (ELEMENTARY (0,1,2,3,4,5,6,7,8); HIGH SCHOOL (1,2,3,4); COLLEGE (1,2,3,4,5+)): 8 / 4 / 4
19a. PREVIOUS DELIVERIES—HOW MANY OTHER CHILDREN ARE NOW LIVING: 0
19b. WERE BORN ALIVE—NOW DEAD: 0
19c. WERE BORN DEAD (FETAL DEATH AT ANY TIME AFTER CONCEPTION): 0

MOTHER

20. RACE—MOTHER (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY)): White
21. EDUCATION—SPECIFY HIGHEST GRADE COMPLETED (ELEMENTARY (0,1,2,3,4,5,6,7,8); HIGH SCHOOL (1,2,3,4); COLLEGE (1,2,3,4+)): 8 / 4 / 1
22a. DATE OF LAST LIVE BIRTH (MONTH, DAY, YEAR):
22b. DATE OF LAST FETAL DEATH (MONTH, DAY, YEAR):

MULTIPLE BIRTHS ENTER STATE FILE NUMBER FOR MATE(S)
LIVE BIRTH(S)
FETAL DEATH(S)

23. DATE LAST NORMAL MENSES BEGAN (MONTH, DAY, YEAR): 8-8-42
24a. MONTH OF PREGNANCY PRENATAL CARE BEGAN (1ST, 2ND, ETC. (SPECIFY)): Second
24b. NO. OF PRENATAL VISITS (TOTAL NUMBER OF MONTH, IF NONE, SO STATE): 16
25. LEGITIMATE (SPECIFY YES OR NO): Yes
26. BIRTH WEIGHT: 6 lbs., ½ oz.
27. COMPLICATIONS RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE"): None
28. BIRTH INJURIES TO FETUS (DESCRIBE OR WRITE "NONE"): None
29. COMPLICATIONS NOT RELATED TO PREGNANCY (DESCRIBE OR WRITE "NONE"): None
30. CONGENITAL MALFORMATIONS OR ANOMALIES OF FETUS (DESCRIBE OR WRITE "NONE"): None
31. COMPLICATIONS OF LABOR (DESCRIBE OR WRITE "NONE"): None

V. S. #614 Rev. 1970

FETAL DEATH – Mr. and Mrs. John Andrew Doe's son was stillborn. The death was recorded by the Division of Health.

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birth certificate before it is bound into the permanent volume. Within six months the parents may correct by affidavit any item on the certificate which is in error except parentage, race or color. Corrections of these latter items require documentary proof, usually the submission of the birth certificates of both parents when there is a question of race or color involved, or a court order when it is a change of parentage.

A mother of a child born out of wedlock may give any surname to her child that she wishes, but it should be the name which the child will actually use. When the name is not her legal name, she may not list the father's name on the birth certificate without his signature or consent. When the parents of an illegitimate child marry, the child becomes legitimate. The Division of Health, when notified

by the parents or their attorney, prepares a new birth certificate and the old birth certificate is sealed and filed away, never to be opened except by a court order.

If a birth certificate is not filed within 12 months following the birth, the Division of Health cannot accept it as an original certificate. Documentary proof of the facts of the birth must be submitted and a fee of five dollars paid. The older the person involved, the more documentary proofs are required. A delayed birth certificate will not be accepted until a search is made to determine that a birth certificate is not already on file. Such search is done at the expense of the applicant and costs two dollars.

The Final Record — The Death Certificate

Dear Division of Health:

". . . will you please send me a death certificate for _____. He died _____, 1973. I'm his widow and I'm trying to get a veteran's widow pension from him . . ."

". . . we are attempting to verify the death of Mrs. _____ _____. Mrs. _____ died in a hospital in_____ , Florida, of cancer. Would you please verify this death? We do not need a certified copy of the death certificate as Mrs._____'s daughter is receiving assistance from our welfare department and we need this information for our records . . ."

The importance of recording death certificates is equal to that of proper registration of births. No well-organized community should allow a human being to die and be buried without an official record being made of the fact. Such records are indispensable in determining causes of death, death rates, ratio of deaths to births, duration of life, rates of life insurance and relative healthfulness of different states and communities.

They are also of great value in preventing and detecting crime, in regulating management of cemeteries, shipment of bodies from one state to another, proving death for probating wills, settling estates, establishing claims for insurance and pensions, and proving ancestory and heredity.

The funeral director is responsible for filing a complete and proper death certificate for each case under his jurisdiction. He is responsible for getting all portions of the death certificate completed (property authenticated by the signatures of the informant on personal information and the medical attendant) and then seeing that the certificate is filed with the local registrar.

The death certificate is divided into three major parts:

*the personal particulars — the name of the deceased, his birthplace, birthdate, race, parents' names, marital status, social security number and several other items which are aids in proper identification.

*the medical certification — this shows the cause and other significant conditions that contributed to the death. This statement must be signed by a physician who had attended the deceased during his illness. In cases where a person dies without medical attention, the medical certification must be signed by the local medical examiner.

*the funeral director's statement as to disposal of the body — cremation or burial, and the name and location of the crematory or cemetery.

The vital statistics law specifies the condition under which the attending physician should certify the death and when the case should be referred to the medical examiner. This protects the interests of society and the individual by establishing authentic records of the facts of death.

The medicolegal system and death registration system have long been an essential function of government. The medicolegal research promotes the interests of society and the individual through official, objective investigations of the causes and manner of death. The death registration system protects the interests of society and the individual by establishing authentic records of the facts of death.

The important item on the death certificate is the cause of death and the underlying causes. The underlying cause is defined as the disease or injury which initiated the train of morbid events leading directly to the death or the circumstances of the accident or violence which produced the fatal injury. It is this item to which medical analysts and public health authorities give their closest attention

because it is regarded as the most important single statistic relating to the prevention of sickness and disease.

Death certificates are of special interest to bereaved families who often find themselves in need of a legally recorded statement concerning the facts of the death. The certificate is the primary source of **who** died, **where, when** and **under what circumstances** for the filing of insurance claims, applying for pensions, veteran's benefits, and to settle estates and property rights. Those who can, by law, obtain a certified copy of the death certificate are the surviving relatives or their legal representatives who have a direct and tangible interest in the cause of death. "Legal representative" may mean an attorney, physician, funeral director, insurance company or any authorized person or agency acting upon the specific direction and request of the survivors.

The Fetal Death Certificate

An important aspect of public health statistics is the recording of fetal deaths (stillbirths). This requires a separate form from the Division of Health. Increasing attention is being given to the recorded information by medical professionals and health authorities.

Much of the data requested for the certificate of fetal death is similar to that required for the birth and death certificates — except information on the physical condition of the mother and the significant features of her medical history, when they can be recorded. Such knowledge contributes to a better understanding on the causes of fetal deaths and guides the efforts to bring more babies through to a normal live birth. Information which is on the confidential part of the certificate includes: the race and education of the parents, the number of previous children born to the couple and how many lived, complications related to the pregnancy, any birth injuries to the fetus, and if there were any congenital malformations of the baby.

A fetal birth certificate must be filed with the local registrar if the baby reached the 20th week of gestation (four and a half-months) and is born dead. If there was a heart beat or other signs of life at the time of birth and the baby then dies, it is considered a live birth and both a birth certificate and death certificate must be completed and filed.

49-12345

REPORT OF (Check one) [XX] DISSOLUTION OF MARRIAGE [ ] ANNULMENT OF MARRIAGE

FLORIDA

1 COUNTY: Duval			2 DATE OF FINAL JUDGMENT: June 13, 1949
3 DOCKET: 49-03102	VOL.: 910	PAGE: 89	4 DATE FILED AND RECORDED: June 15, 1949

HUSBAND

5 HUSBAND—NAME First	Middle	Last
John	Andrew	Doe

6a RESIDENCE—STATE	6b COUNTY	6c CITY, TOWN, OR LOCATION
Florida	Duval	Jacksonville

6d STREET AND NUMBER: 2925 Oak Street

WIFE

7a WIFE—NAME First	Middle	Last	7b MAIDEN NAME
Ida	Do	Doe	Care

8a RESIDENCE—STATE	8b COUNTY	8c CITY, TOWN, OR LOCATION
Florida	Duval	Jacksonville

8d STREET AND NUMBER: 1218 Park Street

9a PLACE OF THIS MARRIAGE—COUNTY	9b STATE (If not in U.S.A., name country)	9c DATE OF THIS MARRIAGE (Month, Day, Year)
Escambia	Florida	April 13, 1942

10a LIVING CHILDREN—TOTAL NUMBER	10b UNDER 18 YEARS OF AGE	11 PETITIONER Husband, Wife, Other (Specify)
Two	Two	Wife

12a ATTORNEY FOR PETITIONER—NAME	12b ADDRESS (Street or R.F.D. No., City or Town, State, Zip)
James R. Clark	1601 May Street, Jacksonville, Fla. 32202

13 CLERK OF CIRCUIT COURT	BY
Richard Day	Roberta Smith, Deputy

VS # 400

State of Florida
Department of Health and Rehabilitative Services
DIVISION OF HEALTH
BUREAU OF VITAL STATISTICS

MARRIAGE DISSOLVED – When John Andrew Doe was divorced from his wife, the event was recorded in the circuit court and the Division of Health's headquarters.

Other Records — Marriage and Dissolution of Marriage

Dear Division of Health:

"... I have applied for U.S. citizenship and the officials of the Department at Los Angeles require an official certificate of marriage with an official seal ..."

"... in order to complete an adoption referral on the children of the above named individuals, we need to verify this marriage which took place in _____ County and the divorce which took place in _____ County ..."

Back in 1927, the Florida Legislature passed the laws which made the old State Board of Health's (now Division of Health) Bureau of Vital Statistics responsible for the collection of marriage

and dissolution of marriage records. As previously mentioned, the county judges record the marriages in their county records and send the original certificates to the Division of Health headquarters in Jacksonville. The clerks of the circuit courts send to the Division of Health copies of the dissolution of marriage reports.

No health information is recorded on the marriage and dissolution certificates. But public health statisticians look at the demographic characteristics and note any changes in trends which may

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DEATH CERTIFICATE — John Andrew Doe's life ended in an accident and the facts surrounding his death are recorded by the physician for the records of the Division of Health.

CERTIFICATE OF DEATH

Department of Health and Rehabilitative Services
DIVISION OF HEALTH
BUREAU OF VITAL STATISTICS

FLORIDA

STATE FILE NO. 73-878812

REGISTRAR'S NO.

TYPE, OR PRINT IN PERMANENT INK SEE HANDBOOK FOR INSTRUCTIONS

DECEASED

1. DECEASED—NAME (FIRST, MIDDLE, LAST): John Andrew Doe
2. SEX: Male
3. DATE OF DEATH (MONTH, DAY, YEAR): December 13, 1973
4. RACE (WHITE, NEGRO, AMERICAN INDIAN, ETC. (SPECIFY)): White
5a. AGE—LAST BIRTHDAY (YEARS): 51
5b. UNDER 1 YEAR (MOS., DAYS)
5c. UNDER 1 DAY (HOURS, MIN.)
5d. DATE OF BIRTH (MONTH, DAY, YEAR): March 13, 1922
7a. COUNTY OF DEATH: Duval
7b. CITY, TOWN, OR LOCATION OF DEATH: Jacksonville
7c. INSIDE CITY LIMITS (SPECIFY YES OR NO): Yes
7d. HOSPITAL OR OTHER INSTITUTION—NAME (IF NOT IN EITHER, GIVE STREET AND NUMBER): Riverside Hospital
8. STATE OF BIRTH (IF NOT IN U.S.A., NAME COUNTRY): Florida
9. CITIZEN OF WHAT COUNTRY: USA
10. MARRIED, NEVER MARRIED, WIDOWED, DIVORCED (SPECIFY): Divorced
11. SURVIVING SPOUSE (IF WIFE, GIVE MAIDEN NAME):
12. SOCIAL SECURITY NUMBER: 261-43-9762
13a. USUAL OCCUPATION (GIVE KIND OF WORK DONE DURING MOST OF WORKING LIFE, EVEN IF RETIRED):
13b. KIND OF BUSINESS OR INDUSTRY:

USUAL RESIDENCE WHERE DECEASED LIVED. IF DEATH OCCURRED IN INSTITUTION, GIVE RESIDENCE BEFORE ADMISSION.

14a. RESIDENCE—STATE: Florida
14b. COUNTY: Duval
14c. CITY, TOWN, OR LOCATION: Jacksonville
14d. INSIDE CITY LIMITS (SPECIFY YES OR NO): Yes
14e. STREET AND NUMBER: 2925 Oak Street

PARENTS

15. FATHER—NAME (FIRST, MIDDLE, LAST): Thomas Ray Doe
16. MOTHER—MAIDEN NAME (FIRST, MIDDLE, LAST): Lei Ann James
17a. INFORMANT—NAME: Nancy Roberts
17b. MAILING ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP): 2930 Oak Street, Jacksonville, Fla. 32202

CAUSE

PART I. DEATH WAS CAUSED BY: (ENTER ONLY ONE CAUSE PER LINE FOR (a), (b), AND (c).)

18. IMMEDIATE CAUSE (a): Blunt trauma to head — APPROXIMATE INTERVAL BETWEEN ONSET AND DEATH: 12 hrs.
DUE TO, OR AS A CONSEQUENCE OF:
CONDITIONS, IF ANY, WHICH GAVE RISE TO IMMEDIATE CAUSE (a), STATING THE UNDERLYING CAUSE LAST (b):
DUE TO, OR AS A CONSEQUENCE OF:
(c):

PART II. OTHER SIGNIFICANT CONDITIONS. CONDITIONS CONTRIBUTING TO DEATH BUT NOT RELATED TO CAUSE GIVEN IN PART I (a).: Blood alcohol content 0.40%

19a. AUTOPSY (YES OR NO): Yes
19b. IF YES WERE FINDINGS CONSIDERED IN DETERMINING CAUSE OF DEATH: Yes

20a. (Probable) ACCIDENT, SUICIDE OR HOMICIDE, OR UNDETERMINED (Specify): Accident
20b. DATE OF INJURY (MONTH, DAY, YEAR): 12-12-73
20c. HOUR: 11:51 P.M.
20d. HOW INJURY OCCURRED (ENTER NATURE OF INJURY IN PART I OR PART II, ITEM 18): Lost control of auto on curve
20e. INJURY AT WORK (SPECIFY YES OR NO): No
20f. PLACE OF INJURY (AT HOME, FARM, STREET, FACTORY, OFFICE BLDG., ETC. (SPECIFY)): Street
20g. LOCATION (STREET OR R.F.D. NO., CITY OR TOWN, STATE): 7920 St. Johns Avenue, Jacksonville, Florida

CERTIFIER

21a. CERTIFICATION—PHYSICIAN: I ATTENDED THE DECEASED FROM (MONTH DAY YEAR) TO (MONTH DAY YEAR)
21b. AND LAST SAW HIM/HER ALIVE ON (MONTH DAY YEAR)
21c. I DID/DID NOT VIEW THE BODY AFTER DEATH.
21d. DEATH OCCURRED (HOUR): 11:30 A.M.
21e. AT THE PLACE, ON THE DATE, AND, TO THE BEST OF MY KNOWLEDGE, DUE TO THE CAUSE(S) STATED.

22a. CERTIFICATION—MEDICAL EXAMINER OR CORONER: ON THE BASIS OF THE EXAMINATION OF THE BODY AND/OR THE INVESTIGATION, IN MY OPINION, DEATH OCCURRED ON THE DATE AND DUE TO THE CAUSE(S) STATED. HOUR OF DEATH: 11:49 A.M.
22b. THE DECEDENT WAS PRONOUNCED DEAD: MONTH 12, DAY 13, YEAR 73, HOUR 11:30 A.M.
23a. CERTIFIER—NAME (TYPE OR PRINT): H. Lester Moore
23b. SIGNATURE: H. Lester Moore
23c. DEGREE OR TITLE:
23d. DATE SIGNED (MONTH, DAY, YEAR): 12-14-73
23e. MAILING ADDRESS—CERTIFIER (STREET OR R.F.D. NO.): 1217 Pearl Street (CITY OR TOWN): Jacksonville (STATE): Florida (ZIP):

BURIAL

24a. BURIAL, CREMATION, REMOVAL (SPECIFY): Cremation
24b. CEMETERY OR CREMATORY—NAME: Sleep Easy Cemetery
24c. LOCATION (CITY OR TOWN, STATE): Restful Haven, Florida
25a. DATE (MONTH, DAY, YEAR): 12-14-73
25b. FUNERAL HOME—NAME AND ADDRESS (STREET OR R.F.D. NO., CITY OR TOWN, STATE, ZIP): Holman Funeral Home, P. O. Box 210, Jacksonville, Fla. 32205
25c. FUNERAL DIRECTOR—SIGNATURE: John Smith
26a. REGISTRAR—SIGNATURE: Alex Johnson
26b. DATE RECEIVED BY LOCAL REGISTRAR: 12-14-73

V. S. #612 Rev. 1970

indicate the stability of the American family and possible community and health problems involved.

At one time a period of high marriage rates was naturally followed by an upsurge in the birth rate, but today's family planning practices have pretty much eliminated this as an indication of future fertility of the human race.

The marriage certificate requires the name, address, age and race of the participants, their previous marital status, who performed the marriage and where the ceremony took place.

The dissolution of marriage records show the names of the individuals involved, the place and date where they were married, the number of children under 18 years of age who are affected, and the place and date of the final judgment. Under the old system, an attempt was made to learn the cause of the divorce, but under Florida's new law, this is no longer listed.

Public health statistics look at the marriage records to find trends in the marital status (prior to the marriage), the ages of the bride and groom, and the number of marriages during a certain period to determine if any changes in the marriage laws made any significant changes in the marriage patterns. Trends are also noted in the divorce rates after changes are made in the divorce laws.

The Eyes and Ears of Public Health

Now that we have established that vital records are important to the individual and his family, we can turn to the facts that the public health agencies, both state and federal, use these birth, death, fetal death, marriage and dissolution of marriage records for the good of the community.

What part do these vital statistics play in the everyday life of the community, state and nation?

Vital statistics are called the eyes and ears of public health agencies — local, state and national — and all sound community planning is based on them. Only with such information as the number of babies born and the number of people who die, can the

INTO THE COMPUTER – All of the information on the certificates and records concerning John Andrew Doe is put onto computer tapes at the Division of Health. This information is used to plan public health programs in Florida.

Division of Health gauge the health needs of Florida citizens and organize whatever health services may be necessary.

Back during the mid-19th Century, public health and medical authorities could have used statistics to determine an overall relationship of death to the great epidemics that swept the county — yellow fever, dengue fever, cholera, smallpox, malaria and tuberculosis. To properly fight the disease, they needed to know what areas were affected by the disease, the age and sex, and the social factors of the people involved. But at that time these vital records were sketchy — if they existed at all.

The old State Board of Health was founded on the basis of the control of the yellow fever specter. One of the first regulations of the state health agency was for each incorporated city and county to collect and send to the headquarters a monthly report on vital statistics and prevailing disease. This was not effective and state laws had to be passed to put some emphasis on the collecting and reporting of vital statistics. A system, which used local physicians as county health officers, was established to tally the vital statistics and disease reports and send them back to the state registrar. This was the beginning of the work of the county health officers.

Vital statistics have shown how the causes of death have changed over the past several decades. Formerly, death certificates showed such infectious diseases as tuberculosis, diphtheria, scarlet fever and typhoid fever among the chief causes of death. The mortality rates from infectious diseases among children was especially high. Today, immunizations have brought these diseases under control.

At the present time, the major causes of death (except from accidents) are the chronic diseases, with heart disease and cancer leading the list. One reason for this shift is because the lessened dangers from infectious diseases have allowed more people to live safely through their childhoods and young adulthoods to ages 50, 60 and 70 where chronic diseases take their heaviest toll. Medical science is now concentrating on the causes, prevention and treatment of chronic diseases.

Vital statistics are used in a number of ways by public health, industry and business. The recording of the number of births, for example, may point to the need for more public health nurses and child health services in those areas of the community where the increase is most pronounced — as shown by an analysis of the "usual residence of mother" answers on the birth certificate. Manufacturers of baby foods, baby clothing, perambulators and toys keep constant watch on the number of births and where they are taking place. Social factors, such as family planning, have brought Florida's birth rate down to an all-time low of 13.8 per 1,000 population and demographers see this as a significant change.

An expanding birth rate foreshadows increasing market for the great variety of consumer goods which children need when they start to school and grow up into young men and women. Educational authorities have to plan needs for school facilities as the youngsters approach elementary school, high school and college age.

Mortality data, which show an increasing amount of chronic disease, may underscore the need for special medical services and facilities for older people. A rise or decline in the number of deaths in any area of the country is a matter or prime importance to those dealing in funeral directors' supplies. Beyond that, vital statistics are

the life blood of the big insurance companies which use death data in order to calculate their insurance rates.

The Division of Health's Public Health Statistics Section has designed and maintained systems for retrieving statistical information from vital records and compiling, analyzing and presenting these figures in the form of public reports — such as its monthly *Vital Statistical Record* and the annual *Florida Vital Statistics.*

It also maintains an extensive file of unpublished data, which are compiled in more detail than published reports, and these are available to answer specific requests. Also, available are results of special studies, such as skin divers death statistics. These are analyzed by type of diver, by age and sex of divers and type of equipment used. Such information is invaluable to people planning for better health services, budgeting other uses of resources, where and when they are needed.

A Personal Stake

Preliminary reports for 1973 show that in Florida there were

* 108,465 live births;
* 88,191 deaths;
* 2,048 fetal deaths;
* 88,820 marriages; and
* 55,993 divorces.

Whether it was birth, death, marriage or divorce, each event was important in the life of the individual involved. Each baby will need a certified copy of his birth certificate before he is very far along in life. Rich men and poor men, alike, are recorded in the death statistics of the State of Florida. Brides and bridegrooms marked their wedding days and other couples ended their marriages in the divorce courts.

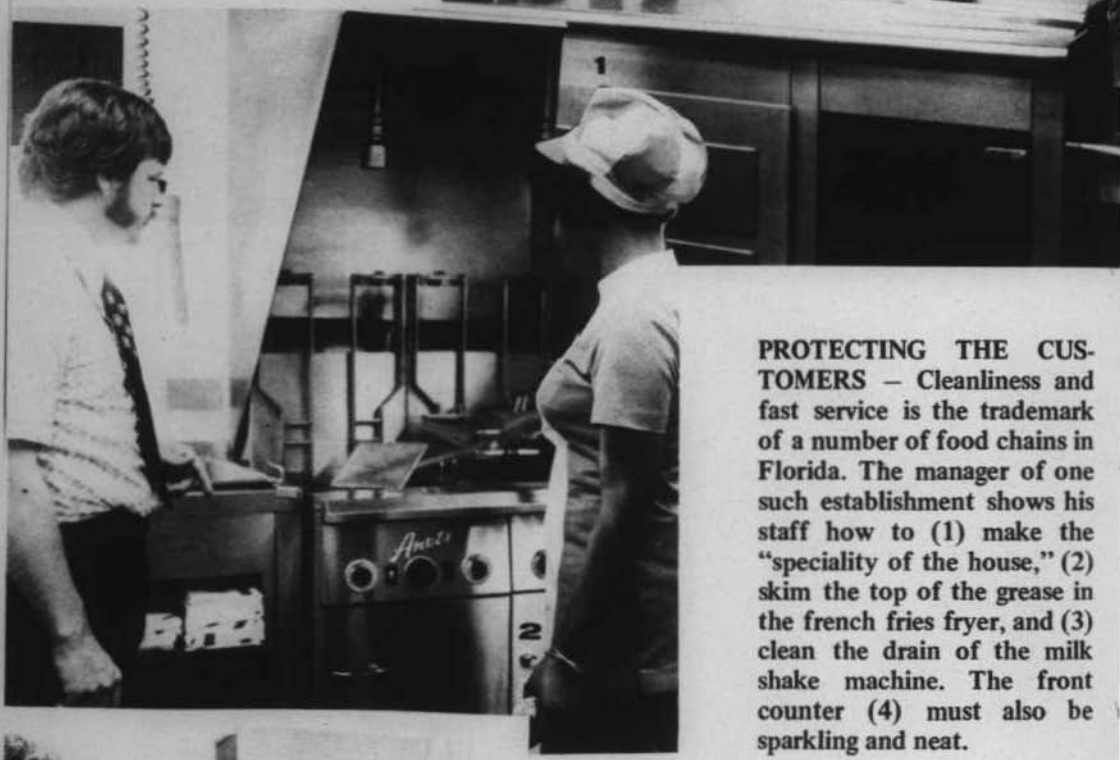
The compilation of these records took the cooperative efforts of a vast number of people in the community. These vital records form the vital statistics of the state and they are analyzed and used by the Division of Health to improve the health of each citizen. Vital statistics are very important to Florida's public health.

FLORIDA
HEALTH NO
OLUME 66 – NO. 8

PROTECTING
the Dining-Out Pub

FLORIDA STATE

CLEAN HANDS (Cover photo) – The manager of a fast service food establishment demonstrates to his workers the proper hand-washing method.



PROTECTING THE CUSTOMERS – Cleanliness and fast service is the trademark of a number of food chains in Florida. The manager of one such establishment shows his staff how to (1) make the "speciality of the house," (2) skim the top of the grease in the french fries fryer, and (3) clean the drain of the milk shake machine. The front counter (4) must also be sparkling and neat.

PROTECTING the DINING-OUT PUBLIC

Have you ever been in a restaurant and seen George the Germ's helpers in action? George is so small that he can only be viewed through a microscope; but he may be found on the lipsticked rim of a cup, in a greasy-thumb print on a fork, the loose flying hair of a busboy, the jingling, jangling jewelry of a waitress, or in food left standing at room temperature for too long a time. George's helpers are cooks, food workers, waiters and waitresses, busboys — and customers. They are capable of spreading George through food and beverage to those who dine in Florida's restaurants. Food is one of the very effective ways of spreading Mr. Germ. He can make you ill.

One of the major duties of the Division of Health of the Department of Health and Rehabilitative Services is to protect you, the dining-out public from George the Germ, who also has other relatives — Sue Salmonella, Stella Staphylococcus and Bobby Botulism. They all have different characteristics but they have one thing in common: They can make you very ill.

Although you may be taken ill after eating at home, there is much more of a chance of getting sick while dining out because many more people are involved in the preparation and serving of food.

The practice of dining out has become popular and convenient, and often a necessary part of our 20th Century civilization. Everyone enjoys eating at his favorite restaurant or cafe with his family and friends. Approximately six million Floridians and tourists eat in Florida's 25,000-plus restaurants each day. The food they consume is prepared and served by some 400,000 food service workers.

This issue of *Florida Health Notes* will tell you how the Division of Health is protecting you from food-borne illnesses through the training of food service regulation personnel, sanitation survey officers and food hygiene program coordinators in public health agencies, and food management people in the food industry. We will tell you about the various types of bacteria that can be found in food. We will also discuss the number of reported cases of food poisonings, and introduce you to the laboratories of the Division of Health which give support to the food hygiene programs.

Through the Years

For many years the old State Board of Health (now Division of Health) and the county health departments have tried to protect you from George the Germ. The State Board of Health's 1936 *Annual Report* was the first to report that Escambia and Jackson County Health Departments had established programs under which food establishments registered with the county health departments. The number of visits to these made by sanitarians was quoted.

Since that time eating and drinking establishments, food processing plants, abattoirs, shellfish and crustacea plants, grocery and meat markets, dairy farms, milk and milk production plants and other food establishments have been under the surveillance of the Division of Health and county health departments. Trailer parks, food processing plants, camps, bottled water plants, and rendering plants are issued permits before they can operate.

For a number of years the county health departments issued "health cards" to food service workers. Blood tests, chest x-rays and stool specimens were part of the examinations for health cards. Diseases related to these examinations are not generally associated

FLORIDA HEALTH NOTES

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with food. The health card system has been abandoned in favor of a more comprehensive-type training program for management-level personnel in food establishments.

The first coordinated food service training school program was initiated in 1947 by the State Board of Health. It was co-sponsored by the Florida Restaurant Association and State Hotel Commission, and given through the county health departments for local food service workers. The six-hour course covered sanitation and personal health. The local health units were encouraged to establish their own training programs.

Forty-five programs were given by the State Board of Health staff in 27 counties during the first year of operation. Over 27,000 persons attended the sessions. Reports stated that progress was seen in the restaurant industry. During that first year there was a general decrease in the health hazards in food service because of the installation of new equipment in a number of establishments, improvement of utensil sanitization methods, and efficient control of pests.

The coordinated food training program originated in the health education area of the old State Board of Health; but in 1951 it was transferred to the Bureau of Sanitary Engineering where expert advice and consultation on the subject were readily available. Sanitation problems of eating and drinking establishments were an integral part of the program. In 1958, the Sanitation Section of the Bureau of Local Health Services was established and more intensive efforts were directed to training activities for workers in food establishments.

Some of the larger counties, such as Dade and Escambia, have operated food service workers training program for a number of years. Others, such as Palm Beach, Polk, Duval, Hillsborough, Orange, Brevard, Broward, Alachua and Volusia, have established such programs in more recent years while smaller county health departments have operated training programs from time to time.

Many of the food service workers trained were not permanent residents of Florida. Each year the Division of Health and county health departments would train approximately 5,000 to 10,000 workers and even this was only a small portion of the thousands of food service workers.

BACK TO SCHOOL – Supermarket produce managers take an examination as part of their training.

The Division of Health, in its efforts to provide better protection to the public, initiated "in-house" type of training for its own employees.

All the sanitation consultants at the state level who have any involvement with the food program are certified by the Food and Drug Administration-Public Health Service as food service sanitation survey officers. In turn these consultants train and certify food hygiene program coordinators in the local health departments, who train county health department sanitarians and food service workers in the communities.

This training program has placed an emphasis on statewide uniformity in interpreting the **Administrative Code** and enforcement in the food program.

Training for Management

With the beginning of 1974, the Division of Health started a program to train management level people in food establishments who would be responsible for the training of their own personnel concerning sanitation.

The aim of the program is to train at least one managerial person from each of the 25,000-plus food service establishments in Florida. The training is concentrated on management because they are at the food establishments every day whereas the county health department sanitarian, who otherwise would be carrying on the training, gets around to each restaurant only six or seven times a year.

The objective of the course is to help food management personnel to recognize the potential for food-borne disease outbreaks in Florida's food service operation and to discuss methods for prevention. It is hoped that the course will create an awareness of sanitation among these people and the information will be passed on to the food workers.

The Division of Health, through the county health departments, will have some 25 training programs going on simultaneously throughout the state. The food hygiene program coordinators will play leading roles in the presentation of these programs at the local level. The programs will consist of movie films, film strips and slides with tape recordings.

This training of managers has the endorsement of the Florida Restaurant Association, the organization which represents most of the food establishments in Florida.

Training for Survey Officers and Coordinators

The sanitarians who will carry on the training of food establishment managers are the food hygiene program coordinators of the county health departments. They are given special training by the food sanitation survey rating officers in the interpretation and enforcement of the **Florida Administrative Code** and the **Food Service Sanitation Manual** of the U.S. Public Health Service. Additional subjects include record keeping, utilization of the laboratories, legal aspects of a food hygiene program, and epidemiological and investigational procedures in a food-borne outbreak.

In addition to the regular course work, the food hygiene program coordinator must also carry out joint inspections of some 15 food service establishments — picked at random — with his state rating officer. During the surveys, the food hygiene coordinator must have an 85 percent agreement with the survey officer on the 44 items on the inspection sheet. In addition, he must pass a written examination. The certificate that is issued to him is good for three years. In order to be re-certified, he must take additional instruction and make another series of inspections with the state rating officer. He in turn works with the sanitarian in his county to achieve thorough and uniform inspection. Florida was the first state to have a certified food hygiene program coordinator in every county.

The food service sanitation survey rating officers are trained and certified by the regional food service survey rating officers of the Public Health Service of the Federal Food and Drug Administration. A major portion of the certification process is joint field inspection in which the state consultants must have 80 percent agreement with the regional surveying officers on 118 items. Items include everything about the food establishment — food source, food protection, equipment and utensils, restrooms, housekeeping, water supplies, waste disposal, building construction, and employees hygiene and training.

The training of food hygiene program coordinators and the survey officers is aimed at achieving a uniform inspection program in Florida. In order to maintain a food sanitation program and to keep workers "on their toes," the rating and other types of evaluations are widely used to appriase the food service establishments. Because of the tendency of the modern food industry to prepare food at one location and ship it to food service establishments in other areas, there is a need for a greater degree of uniformity in the evaluation of food establishments. This service has just one goal — the protection of you, the dining-out public.

During the evaluations the sanitarian must have the ability to interpret the sanitary conditions of the food establishment and give an accurate and consistent interpretation of the violations to the establishment's operator. This is why the food coordinators and food survey rating officers go through joint inspections to agree on the interpretation of the **Florida Administrative Code.**

Training Within the Food Industry

Quality of food, fast service, and sparkling, attractive facilities play a big part in the success of food establishments. Perhaps half of today's food establishments are part of chains. Some operate entirely in Florida, but they have establishments in other states as well. These stores, or shops, may be either a locally-owned franchise or be company owned. Some of the biggest successes have been among the fast food chains which emphasis cleanliness, low-operating budgets, fast service to customers, and quality food.

Because of the large turnover of employees in the food industry, many food establishments have on-the-job training for their personnel, but few have extensive training in protection of food from

FOOD INDUSTRY TRAINING – Workers of a food chain shop watch an 8mm film strip on sanitation (left). This is followed by an examination (right) which shows how much of the information the employee remembers.

disease, the various infections transmitted by foods, personal cleanliness and other food hygiene information.

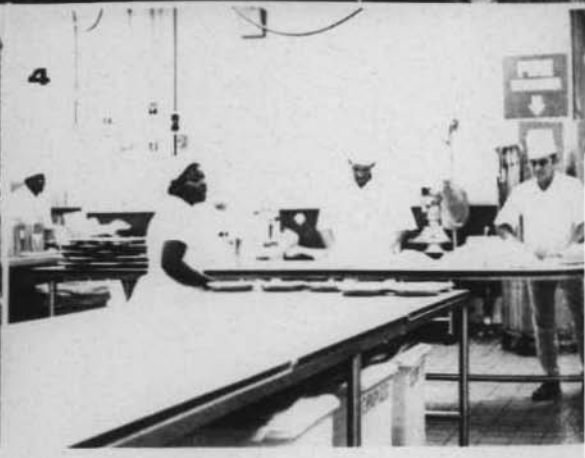
Several fast food service chains have developed training programs for their managers and employees. This training includes information that ranges from how to operate the shop to proper cleaning equipment and the shop's grounds.

At least two chains have self-contained, television-type projectors that play cassets of 8mm films or film strips and eight-track tapes which tell managers and their staffs how to make out reports, handle customers, clean grills, cook the food, and maintain clean stores and grounds. Employees can watch these tapes, which are from 10 to 30 minutes in length, during their rest periods. One food chain gives its employees a written examination after they have viewed the tapes. The employees must score at least 70 on the test. If they fail, the must re-view the tapes again.

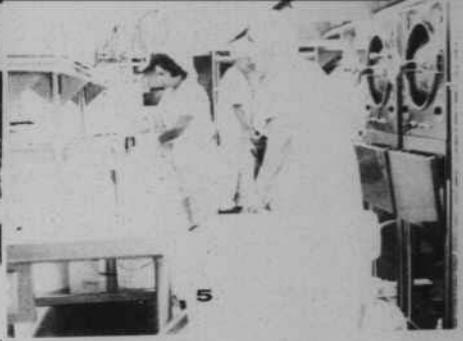
Another fast food chain has extensive procedure manuals for its managers that include everything on the operation of the stores from the purchasing of food to cleaning the parking lot. In addition, regular inspections are made by the local store manager and officials from the regional office and company headquarters.

Food Service at the Vacation Kingdom

Walt Disney World has without a doubt the largest food operation in Florida. In the Vacation Kingdom, visitors may dine at



any one of 60 food and beverage establishments. These include food stands that serve soft drinks and packaged potato chips, the elegant King Stefan's Banquet Hall in Cinderella Castle, the Plaza Pavilion, a bakery shop, ice cream parlor, and a wide variety of eating places. Or visitors may choose to dine in the glass-enclosed Top of the World on the top of the Contemporary Hotel, at a luau in the Polynesian Village Resort, or at the Golf Resort Hotel.

FOOD FOR THE VACATION KINGDOM – Most visitors to Walt Disney World are well acquainted with Cinderella Castle (1), but they never go behind the scenes to the Central Food Facility that receives, stores and processes the food service in the Florida attraction. Sandwich meats (2), pies (3), rolls (4) and sauces (5) are among the foods prepared in the spotless main kitchens. Meats are cut and proportioned in the meat room (6). The food is transported to the 60 food and beverage establishments in Walt Disney World, including the new Pioneer Hall (7) in Fort Wilderness, and outdoor refreshment areas (8) where visitors may enjoy snacks in the shadow of the Swiss Family Island Treehouse, located in Adventureland. (Photos 1, 7 and 8 courtsey of Walt Disney Productions.)

All of these facilities, including the Central Food Facility behind the scenes, employ some 3,000 food service workers during the peak season — roughly one-third of Walt Disney World's 10,000 employees.

The 60 food and beverage establishments serve some 120,000 meals a day during the summer season. One hamburger machine,

located in the Tomorrowland Terrace, cooks some 3,500 hamburgers an hour.

The Central Food Facility, where much of the food served at Walt Disney World is received, stored and processed, handles some $1.5 million worth of food every 10 days. This amounts to approximately $55 million a year. This facility contains storage rooms, a meat cutting room, salad preparation rooms, and kitchens where portions are prepared and sauces and dressings made. Refrigerated trucks transport foods from the Central Food Facility to the various food establishments in the Walt Disney World complex. Here the foods are cooked and served.

Every employee hired by Walt Disney World is given a two-day orientation in which personal cleanliness and sanitation are discussed briefly. All personnel, including supervisors in the food service department, then attend classes on food handling and protection and personal cleanliness taught by a sanitarian on the staff of Walt Disney World. There is continual on-the-job training in which each employee is thoroughly trained for his particular duty. The Disney company has a policy of internal promotions and workers are rotated through the various jobs so they can learn all phases of the food service work.

The food and beverage establishments in Walt Disney World are inspected regularly for sanitation and rated on their cleanliness and other aspects of food hygiene. The various restaurants, snack bars and the Central Food Facility compete to obtain higher sanitation ratings and this is a contributing factor in maintaining the high level of sanitation required.

What are Food-Borne Illnesses?

At one time, foods were received in their natural state and prepared according to the practices of the food establishment. Today many food items are pre-portioned, prepared, semi-prepared, or readied for cooking when delivered to restaurants — especially for chain-store operations. Consequently, foods are going through more processes and are being exposed to more sources of contamination before they are served to customers. During each stage, or procedure in the food processing chain, a momentary breakdown in safe food practices could contaminate the produce or create a condition that may lead to an outbreak of food-borne illness.

What is food-borne illness? You have probably heard several terms for this over the years . . . food poisoning, ptomaine poisoning,

food-associated illness. Other terms used to describe this condition are "24-hour virus" and "The G.I.'s." These terms are used to describe a condition where someone becomes ill after eating food that was mishandled or contaminated.

The Division of Health is concerned about the number of customers who become ill because of something they ate or drank. It is estimated that two million people in this country get sick each year from a food-borne illness. Investigations reveal that only seven percent of these illnesses are related to water or milk, while 93 percent are caused by contaminated or unwholesome food.

Water and milk supplies and production have reached a stage of sophistication where neither is touched by human hands before it is consumed. Mistakes made by people who prepare food lead to food-borne illnesses.

During 1973, there were over 3,500 cases of infectious hepatitis, 1,068 cases of Salmonella, and 151 cases of related illnesses reported in Florida. All of these diseases can be transmitted by food. Although the numbers seem low, many more people were made ill by food who did not report it. There were no major outbreaks of food poisonings during the year due largely to the 240,000 visits made by sanitarians to food service establishments, food processing plants, and milk plants.

George the Germ's Characteristics

George the Germ and his relatives have a few idiosyncrasies which set them apart and allow man to control them. The regulations of the Division of Health, which govern the operation of all food service establishments and provide the basis for all inspections by county health departments sanitarians, are founded upon the knowledge of bacteria. A lack of understanding about germs and poor food handling practices often leads to an outbreak of food-borne illness.

Mr. Germ and his relatives are so small they cannot be seen without the aid of a microscope and several million can live on the head of a pin.

They are found everywhere — in the air, water or soil. It is impossible to live without coming in contact with germs. They are simple, one cell plants and grow by cell division. Bacteria can double

CHECKING THE DISH-WATER – A county health department sanitarian, during an inspection, checks the chlorine level of the water in the sinks of a fast service food establishment.

in numbers in 15 to 20 minutes. A single cell, in eight hours, can multiply into millions.

Bacteria come in different shapes. Round bacteria are called cocci. They occur in single cells, may be arranged in chains, or may be in clusters like a bunch of grapes. Some are rod-shaped and may produce a spore which is important because these spores are extremely resistant to heat. Waste products created by the growth of the bacteria can cause illness.

Bacteria are sensitive to heat, cold and chemicals. High temperatures will kill, but even high temperatures will not destroy the poisonous waste products of certain kinds of germs. Holding foods on steam tables at 150 degrees Fahrenheit or above will prevent the growth of bacteria. Cold slows this growth. When foods are refrigerated or frozen properly and promptly, they are protected against the rapid growth of bacteria. Foods should be refrigerated at temperatures of 40 degrees Fahrenheit or less. Certain chemicals will

kill and control the growth of bacteria. They are called sanitizers and are used to sanitize utensils and equipment.

George the Germ and his relatives are hitchhikers. They cannot move by themselves from one place to another. The most common carrier is people. Foods can be contaminated by germs from cuts, sores, boils, pimples and body wastes. Millions of germs can be spread by a single sneeze or cough. The filthy habits of insects, such as the housefly or roach, play an important part in carrying many germs. Unsafe water supplies can be a source of bacteria.

Types of Food-Borne Illnesses

There are three basic categories of food-borne illnesses:

*food infection — caused by a type of bacteria entering and growing in the body;

*food intoxication — caused by toxic waste products formed by bacteria growing in the food; and

*chemical poisonings — resulting from accidental addition of toxic substances to food or the reaction of acid foods on storage containers which cause chemical poisonings.

The major cause of food-borne illness is food infection. The bacteria usually enters the body in food. Once inside the germs multiply and become so numerous that they overcome the body's ability to work properly — resulting in disease or illness.

One of the most common food infections is Salmonella which comes from the intestinal tracts and wastes of infected birds, animals

DURING HIS BREAK – An employee of a fast service food establishment prepares to watch an educational film strip prepared by his company.

and man. Raw foods, such as poultry, eggs, beef and pork, taken from infected animals can be contaminated. Animals can become infected through food they eat or from their own farm environment. The infection spreads from infected animal to healthy animals while they are being transported or being held in pens at slaughter houses. It is also transmitted from animal feces to clean carcasses by dirty equipment and hands during slaughtering, cleaning and processing.

Salmonella often enters the food establishments on raw products of animal origin. These foods become dangerous when they are under-cooked, mishandled, or re-contaminated after cooking and allowed to remain at room temperature. This permits the Salmonella to multiply.

The illness develops in about 12 to 36 hours after eating the contaminated food. The most common symptoms are fever, abdominal pain, diarrhea and frequent vomiting.

Food intoxication is a food-borne illness caused by germs that produce a waste product which is harmful to the person who eats the food. *Staphylococcus*, *Clostridium perfringens* and *Clostridium botulinum* are the most common of the food intoxication groups.

Disease producing staphylococci are present in the nose of between 30 and 50 percent of healthy individuals at all times. They are also on the hands and skin of many healthy persons. Outbreaks due to staphylococci are often traced back to food service workers with nasal discharges, skin infections, infected throats, or infected cuts or boils who contaminate food which are stored at improper temperatures.

The bacteria grow on the surface or in foods. They develop best in protein foods. The toxin produced by staphylococcus may not be destroyed by the heat used in cooking. It is important that food service workers keep foods hot or cold, not at room temperatures — to keep the bacteria from multiplying.

Persons made ill from eating food containing staphylococcus will usually become ill in one to six hours after eating and will have severe symptoms of nausea, vomiting, diarrhea and stomach cramps. Often victims will be so ill they will be confined to bed or require hospitalization. The illness rarely lasts more than a day.

Clostridium perfringens is normally found in soils, dust and intestinal tracts and feces of man and animals. These bacteria prefer

COMPANY INSPECTION – An inspector sent from the headquarters of a food chain checks the temperature of meat received from the supplier. If the temperature is too high, the meat is not used in the food store.

and need protein-type foods, such as meats and gravies to grow in. It also forms spores which survive cooking temperatures and grow in the food after it cools. It is important that the bacteria is not given a chance to grow and produce the waste products in foods, such as leftover meats.

People with this type of food poisoning will become ill in about eight to 22 hours after eating the contaminated food. Symptoms include abdominal pains, diarrhea, and nausea. Vomiting and fever seldom occur in clostridium intoxication.

Chemical contamination of foods may occur when metals, such as cadmium, zinc, copper and tin are sometimes used in the manufacturing of food containers. Storing or cooking acid foods in these containers have led to outbreaks of chemical food poisonings. These metals may dissolve when exposed to certain types of acid foods, such as lemonade or carbonated water. When a person eats or drinks this chemically contaminated food, he will become ill in minutes. To prevent this, foods should be stored in stainless steel containers, food-grade plastic containers, or some other approved container.

People may also be chemically poisoned when insecticides, pesticides or other chemicals used in rodent or insect control, or certain cleaning compounds contaminate food.

Botulism is one of the most deadly type of food intoxications. The usual sources are non-acid foods, such as home-processed string beans, beets, corn or meat products and seafoods that are canned or preserved at temperatures not high enough to kill the germs.

Symptoms of the illness are characterized by weakness, dizziness, headaches, constipation, followed by paralysis involving the central nervous system. Two-thirds of the patients die of cardiac or respiratory failure within three to seven days.

Personal Health and Work Habits

The Division of Health and county health departments can go only so far in protecting the dining-out public. They can train managers and supervisors of food establishments and food service workers, but unless the workers themselves feel the importance of good personal and work habits — food-borne illnesses will occur.

Some cases of food-borne illnesses can be traced to human error. No food service worker would knowingly make someone sick. Errors usually result from the lack of knowledge or failure on the part of someone to do the right thing.

HEALTH OF EMPLOYEES — A county health department sanitarian is concerned about the health of the food service workers.

Most bacteria that cause illnesses live with us all of the time and wait for opportunities to take advantage of a weakness in our bodies. When conditions are right, bacteria multiply rapidly and spread by person-to-person contact or through eating contaminated food. Several diseases besides food poisoning that can spread this way are common colds, hepatitis, different types of diarrhea, and strep throat.

To prevent the spread of germs from people to food, workers must be free of communicable diseases and have no infected cuts or sores on their hands. If workers show symptoms of colds, fevers, sore throats, skin infections or diarrhea, they should be assigned other tasks and not allowed to prepare or serve food. If this is not possible, they should be sent home until they are well.

Food service workers should have good health habits. They should:

*wash their hands after going to the bathroom, smoking, scratching face, head or other areas of the body, and before touching or serving food.

*refrain from smoking while preparing or serving food because smoking is a good way of transferring germs from the mouth to food; and

*wear effective hair restraints. Hair carries millions of germs and one hair falling into food can contaminate it.

Good work habits are just as important as personal health habits. Food service workers must

*prevent the spread of germs from raw food to cooked food and from dirty equipment and utensils to food;

*use tongs, spoons, or forks rather than hands to prepare foods — if hands must be used, make sure they are clean or covered with plastic gloves;

*use clean cloths to wipe tables and work areas, which should also be cleared of clutter; and

*protect foods at all times, before, during and after preparation from contamination.

The habits of food workers in the serving area are of special importance to the restaurant's management and customers. Eating utensils should never be handled by the food contact surface. (This is the same as putting the fingers in your customer's mouth.) Plates and

"THIS IS A NICE ONE" – The head chef of a large motel's restaurant shows the sanitarian his latest shipment of steaks. The sources of food supplies must be approved by the Division of Health and county health departments.

utensils should be picked up by their edges or base so that fingers do not touch the food or mouth contact areas.

Ice should be placed in glasses by tongs or scoop. Food servers should never carry food to customers after cleaning tables of dirty dishes until after washing their hands.

Food Sources and Protection

Another way of protecting the dining-out public from food-borne illnesses is to purchase food from approved sources. This will also help to avoid food spoilage — which is costly over a period of time.

Florida regulations require that all foods purchased or used in food establishments must be from approved sources, clean, wholesome and free of spoilage: that it is safe for human consumption.

Food sources and production are highly regulated by both federal and state governments. Before milk can be sold in Florida, it must be Grade A quality and pasteurized. Meat and meat products are inspected to be sure the animals are healthy and were slaughtered under sanitary conditions. Modern processing and inspection help to insure safe poultry and poultry products. Oysters and shellfish must be purchased from sources approved by the health agency and properly identified with the name and certification number of the shipper. Ice must be made from a safe water supply, in a safe ice

machine, or purchased from a source approved by the local health department. Canned goods must be purchased from approved food processing establishments.

Frozen foods must be completely frozen until they are thawed to be used and must be stored at zero degree Fahrenheit or lower. Foods requiring refrigeration must be stored at 40 degrees or less. Dry foods must be stored away from walls and on clean shelves, platforms or dollies which are high enough off the floor to allow cleaning underneath. Storage rooms must be properly ventilated; food containers arranged on shelves in such a way to permit circulation of air. These rooms should not have overhead sewer or leaking pipes. Cleaning chemicals should be stored away from food supplies.

Food preparation is one area where safe food practices are especially needed. Hands should be clean at all times. It is equally important that equipment, cutting boards, slicers, mixers, grinders and knives be cleaned and sanitized after each use. Fresh fruits and vegetables must be washed before they are prepared to remove soil and other contaminants, such as insecticides. Potentially hazardous ingredients used in the preparation of salads, such as potato, egg or chicken salad, should be cold before being mixed.

Cream filled pies are extremely hazardous if not properly prepared and stored. Cream fillings, whether synthetic or natural ingredients, must be kept at 40 degrees or below until served. Stuffed poultry and meats should be cooked to a minimum internal temperature of 165 degrees without interruption. Left-over meats, which are boiled, steamed, braised, stewed or roasted insufficiently and served cold or reheated the next day, are often involved in food intoxications. These meats, if not served immediately, should be cooled rapidly and stored under proper refrigeration until served.

When foods are transported to other areas, they should be protected from dust or insects and maintained at the required hot or cold temperatures.

Good Housekeeping — A Protection

Good housekeeping creates a pleasant working environment for employees and a more pleasant dining atmosphere for customers. It means keeping the entire establishment clean and sanitary — inside and outside. It also helps break the chain of infection, or spread of

disease, from employee to customer, customer to employee, and from employee and dirty equipment to food.

Sufficient space between, behind and underneath equipment allows for easy cleaning and eliminates potential dirt and grease collecting areas. The most effective way of having a good housekeeping program is to develop a cleaning schedule for the entire establishment as well as each piece of kitchen equipment. The list should include: what to clean, when to clean, who is to clean, how to clean, what to use for cleaning, and how to store until used again.

Floors should be kept clean and free of spills, dirt and litter. Walls and ceiling should be smooth, light colored and easily cleanable. Stove hoods and filters must be cleaned regularly. Grease-laden filters and hoods are the most dangerous fire hazards in the food establishment.

Dishwashing is an important part of housekeeping. There are two methods of dishwashing:

*The manual or handwashing method must use a three-compartment sink equipped with drainboards on both sides. The dishes should be scraped and rinsed, then washed with ample detergent or soap and hot water (as hot as the dishwasher can stand). The dishes then should be placed in the second compartment filled with clear, warm water to remove the soap, and then placed in the third compartment for sanitizing — either with hot water at 170 degrees Fahrenheit or chemicals.

*The dishwashing machine operates basically on the same principle as the three compartment sink. It is one of the most important and expensive pieces of equipment in the place. The wash tank should have water between 140 and 160 degrees and the rinse and sanitizing compartments should have water at 180 degrees between 15 to 25 pounds pressure per square inch. The water should not be too hot or it will turn to steam.

Garbage, Trash and Pests

One of the most recurring problems is garbage and trash disposal. Coupled with this is the problem of pest control. These are problems from which food and the dining-out public needs protection. The issue is compounded by Florida's warm climate. Uncovered garbage and trash provide food and shelter for flies, rats and roaches.

Garbage containers should be situated at convenient locations throughout the food preparation area. Outside garbage receptacles, whether cans or bulk containers, should have tight-fitting lids. Garbage and trash should be collected on a routine basis and taken to a sanitary landfill. It should never be burned. Proper garbage and trash disposal eliminates some insect and rodent problems and makes a food establishment cleaner and more sanitary.

Rats, roaches and flies are of main concern in food establishments. They are capable of contaminating food with germs and filth just by coming in contact with it. The common housefly is a pest that is found in many food establishments. Its hairy body can pick up millions of bacteria as it moves about and breeds in sewage, garbage and trash. Then it leaves an offering — millions of bacteria when it walks on food. Flies can carry more than 30 different types of disease bacteria which can affect man.

Rats and mice transmit disease by germs carried on their bodies and by germs in their feces or urine which they deposit on food and equipment. They cost the food industry more than $2 billion a year and more millions of dollars in damaged walls, ceilings, ruined electrical wires and undermined buildings.

Roaches have lived with men for thousands of years. They live in cracks and crevices under sinks, in cupboards, storerooms and sewer drains. They live off filth that accumulates under and within equipment and in floor drains. Like flies they also have sticky feet and legs which carry millions of bacteria.

The best methods of controlling pests are building them out, starving them, and exterminating them. Proper screening in openings, sealing all crevices, holes and cracks in the walls, installing screen

STOREROOM – The sanitarian checks the storeroom housekeeping in a major restaurant. Dry foods must be stored on shelves high enough off the floor to allow cleaning underneath.

DISHWASHER AND DISHES – The sanitarian inspects dishes emerging from an automatic dishwasher. This is one of the most important and expensive pieces of equipment in the food service establishment.

doors that open outward, and installing air curtain devices (or fans) over outside doors will help keep flies out. Garbage cans should have tight fitting lids. Spilled foods should be cleaned up immediately; equipment and floors should be kept clean; and foods stored so that pests cannot get to them.

Protection Through the Laboratories

Additional protection for the dining-out public is given by the Division of Health laboratories which give behind-the-scenes support to the food hygiene programs. These facilities, located in Jacksonville, Miami, Orlando, Pensacola, Tallahassee, Tampa and West Palm Beach, and in Pinellas and Brevard County Health Departments, performed during 1973.

*101,634 examinations on dairy products;
*385,510 examinations on drinking and swimming pool water;
*9,346 examinations on food for sanitary quality;
*4,278 examinations for food poisonings; and
*4,491 swab tests.

A total of 151 cases of food-borne illnesses was reported during 1973. There were also 3,524 cases of infectious hepatitis, much of which is transmitted by foods, and 1,068 cases of Salmonella infection.

When a food borne outbreak occurs, the Division of Health puts sanitarians, epidemiologists and laboratory technicians into the field to find out the kind of bacteria the causes the outbreak, what were the circumstances, the persons involved, and how it might have been prevented.

The foods that cause illnesses contain a certain type of organism (not all bacteria cause food poisoning). The bacteria must have the proper type of food on which to grow; and they must have the right amount of time and the right temperature. Bacteria that cause food poisoning produce no bad odors, no bad flavors, no bad appearances. Spoiled food may look, taste and smell bad — but it may not necessarily cause food poisoning.

During an investigation of a food-borne illness, the sanitarian tries to obtain samples of the food that were eaten to send to the laboratory for analysis. The laboratories' bacteriologists look for the organisms that are involved. Bacterial counts are made to determine the cleanliness of equipment and utensils. A staphylococcus count can determine whether the food has been contaminated by careless handling, or by an individual with a drippy nose, head cold, or bacteria-laden cuts or boils. A coliform count is made to determine whether the number of ever-present organisms found in the intestinal tract of man and animals have been kept to an acceptable minimum.

Protection for You

Perhaps you are one of the six million Floridians or visitors who ate or drank in a restaurant, cafeteria, hamburger shop, hash house, corner bar or steak house today. Whatever kind of food establishment it was, you can be sure that one of Florida county health departments' sanitarians has checked it recently for proper sanitation. This was protection for you, your family and your friends.

Additional protection is given through the training programs carried on by the Division of Health through the county health departments. These programs are intended to make food establish-

STORAGE FOR UTENSILS – The sanitarian makes a spot check of utensils stored in screened closets.

ment management aware of proper food sanitation and personal cleanliness and motivate the managers to pass this training on to their employees.

You can help yourself by letting the food establishment managers know when you see a breakdown in sanitation — and telling them how pleasant their establishments are when the food is good and surroundings clean and neat.

The Division of Health and county health departments are doing their best to protect your well-being by keeping George the Germ and his relatives out of your food and guarding you from food poisoning.

FLORIDA

HEALTH NOTES

VOLUME 66, NO. 9 SEPTEMBER 1974

Injury Control for the Whole Family

FLYING START TO WORK (Cover photo) – A Florida businessman encounters his son's tricycle as he leaves home. Falls are one of the leading causes of injuries and deaths.

VEHICLE ACCIDENTS – Over 117,000 persons died in motor vehicle accidents in the United States in 1972. This is the major cause of death and injury.

INJURY CONTROL for the WHOLE FAMILY

Mrs. Gilbert had a number of colorful, showy scatter rugs and highly polished floors in her home to show off the collection. Rushing to answer the front door one day, she stepped on a rug. Her feet went out from under her and she fell crashing to the floor. Results: a fractured femur, hospitalization, and many weeks of restricted action.

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Joe Pepper's hobby was gardening. He worked long hours planting, weeding, fertilizing, mowing the lawn and trimming shrubs. One day, while using his electric hedge trimmer, Joe absent-mindedly reached for a small branch that was in the way and caught his fingers in the knife bar. Results: a quick trip to the hospital's emergency department, three lost fingers, much pain and a slight handicap.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Mr. and Mrs. Terry Younger's six-month-old infant was beginning to become acquainted with his world. One of his favorite games was to hide under a blanket or pillow, peek out at his parents, and chortle with laughter. One night when Mrs. Younger put the baby to bed, she forgot to remove the pillow. When she checked on him an hour later, he had pulled the pillow over his face. Results: suffocation, a tiny casket and bereaved parents.

★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★ ★

Eighteen-year-old Bill Hazard was angry at his father. He had received two traffic tickets for speeding but considered them only as nuisances. His parents were threatening to take away his car. His Dad had done some fast talking to have the speeding charges against him dropped, but now his father wanted him to drive slower. He enjoyed the thrill of driving his car fast. Sure he took some chances; but didn't everybody? After the latest argument with his parents, Bill hopped into his car and felt the sense of freedom and escape from his parents' "oppression." He swung away from the curb, stepped on the

gas and started barreling down the street. Just as he reached the intersection at the end of the block, he saw the huge moving van ahead. Darn! He forgot to observe that stop sign. Results: a broken back, months in the hospital and paraylsis for the rest of his life.

★ ★

None of these people would have thought of playing Russian roulette. Yet they were playing an equally dangerous game. The only difference was that with Russian roulette, the players have one chance in five of coming out alive.

Soldiers, bored with life in Russian outposts, started the fascinating game of Russian roulette. One bullet was put into the chamber of a six-shooter; the chamber was spun and the soldiers would take turns putting the revolver to their temple and pressing the trigger. Those who heard a click were lucky. The fatal one was listed as "suicide."

The only way the Russian Army brass could stop the soldiers from playing this game was to charge them with "wasting ammunition."

People play a game when they ignore safety rules. Highly waxed floors and scatter rugs, an electric hedge trimmer and a careless moment, a tiny pillow and an infant, and an emotionally-charged youngster and his automobile are ways of ignoring safety rules.

In 1972, over 117,000 persons died in the United States as the results of accidents from motor vehicles, in the home, at work, and

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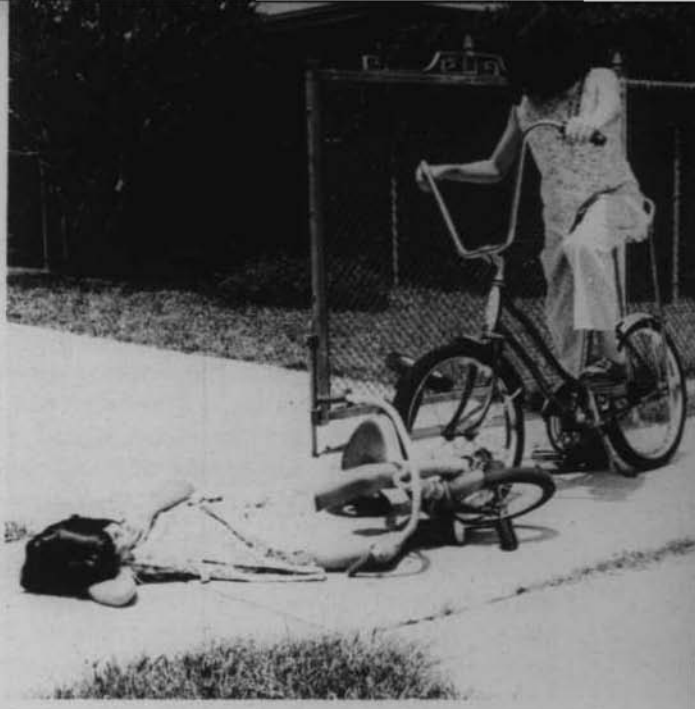

CARELESS PLAY – Bicycles, when used carelessly, can cause accidents and frequently lead to mishaps.

in other places, or through activities, such as swimming and hunting. Approximately 52 million persons suffered accident injuries. Of this number, some 11.5 million experienced some form of disability. The cost of accidents amounted to $37 billion in lost productivity, medical and hospital expenses, insurance claims, property damage and destruction, and lost wages.

In 1972, 4,882 individuals died in accidents in Florida — 2,465 in traffic accidents; 169 by accidental poisonings; 583 from falls, and 527 from drownings and submersions. Another 674 persons died from firearms, electric currents, fires, boating accidents, air plane crashes and suffocation.

Accidents are too important a factor in today's life to ignore. We go merrily on our way without giving much thought to the cause of accidents — until they occur. We often feel that "they happen to the other guy," and when something needs to be done about accidents, we take the attitude, "Let George do it!"

This issue of *Florida Health Notes* will tell you of the new emphasis in public health to change the accident from "accident prevention" to the more descriptive "injury control." We will also tell you what comprises an accident, the epidemiology of injury control, how each member of the family can be involved in injuries, and how these injuries can be reduced. We will also point out what

the Division of Health of the Department of Health and Rehabilitative Services and county health departments are doing about injury reduction.

A Major Health Problem

For too many years the acute accidents have been attributed to "bad luck" or "chance." Emphasis has been usually placed upon human behavior and the unexpected event rather than on the etiological agency and a way of keeping it from becoming harmful.

What are we talking about? Accidents and injury control!

Accidents and injuries are major health problems. Injuries are the leading cause of death for persons from one year up to 37 years of age. In 1972 there were 2,249 accidental deaths in Florida in this age group. This was 34.5 percent of all deaths in this grouping which means that the human and economic loss of people who are beginning their lives, or in the prime of life, is tremendous.

Most people become alarmed when there are a few cases of diphtheria or typhoid and demand immunizations. True these are serious diseases and require attention. People also ask for research into the causes of cancer and heart disease because of the growing number of deaths from these causes. But few people are alarmed with the facts that in the United States there are some 117,000 deaths and over 11 million disabling injuries each year due to accidents (all types).

Progress in the area of injury control is hampered by

* the attitude that reckless, selfish, careless and intoxicated people often "get what they deserve."

* over-emphasis on personal responsibility for avoiding hazards. (A driver may have his automobile in good condition, wear his seat and shoulder belts and keep his eyes on the road, but the limits of his vision, the blowout of a tire, a blind curve without a railing, glass windows beside his face, and poor emergency medical services, due to inadequately trained ambulance attendants, improperly equipped vehicle and emergency department, are things that are outside his control.)

* The randomness of occurrence and emphasis only on primary prevention.

* the notion that human behavior is predominately what needs to be changed.

Injury is the result of humans being exposed to situations in the environment. Prevention of this undesirable exposure depends to a great deal on an adequate standard of human performance, characteristics which affect human behavior, and the circumstances that surround people.

Thus we should identify and work on those human characteristics which adversely affect performance levels, such as extreme youth, drinking, old age, attitudes of all ages, and inexperience.

Attention should also be paid to altering the circumstances which determine the frequency and severity of injuries, such as the disuse of flammable fabrics, promotion of the use of motorcycle helmets, better playgrounds, and removal of highway booby traps.

Accidents can happen at any time and are thought of in terms of physical injury or death — or at least property damage.

The safety councils (national, state and local) have been telling us that "accidents don't happen — they are caused." They are usually the results of a combination of circumstances and not a single cause.

Dangers of Elevated Shoes

High altitude heels and soles are potential disaster-makers – whether they are on shoes, sandals, boots or clogs. You can stumble and sprain or break your leg. Such shoes, floppy sandals, bare feet and even wet shoes can be dangerous when you drive. Sensitivity to the car's pedals and control of the feet may be lost with such thick soles and heels. Bare toes do not have enough power to exert adequate pressure on a brake peddle or dimmer switch. If you have a hangup about high-rise shoes, keep a pair of safe, down-to-earth shoes for driving and walking.

To peruse the problem backward, the **injury** is the result of

the accident, which is the result of

an **unsafe act or mechanical or physical hazard**, which is the result of

the **fault of a person**, which is the result of

the **person's social environment or characteristic trait** (recklessness, thoughlessness, stubborness, emotional state).

Injury control is the attempt to manage the circumstances of the end result (reducing losses due to injury). Approaches to the injury problems are not limited to the primary prevention of the initial event, but may involve any phase of the injury producing process. This is similar to the chain of infection of a communicable disease. A change or break in the chain of events leading to the accident could eliminate the accident.

Involving the Entire Family in Safety

The family is perhaps the primary objective in attaining two major injury prevention goals — dissemination of information concerning injury control, and the development of habits and attitudes which will result in the safe behavior of all family members. The family is the major center of injury prevention responsibility and activity.

Of the millions of medically-attended accident injuries in the United States each year, approximately 40 percent of them are home injuries.

The National Safety Council's creed is:
Safety is positive. It is doing the right thing. It is interest in the welfare of others. It is a contribution to good living, to good government, and respect for law and order, to efficient production, and to the well-being of every individual.

The theory that accidents can be prevented is a 20th Century concept. Before that, people thought of accidents as the "Will of God." Prior to the philosophy of accident prevention, there were many disasters that plagued mankind — mine and marine disasters; accidents by unguarded machines; forest, theater and even city-wide fires; railway disasters, floods and poisonings. These disasters gave birth to the safety movement.

Many times family accidents occur because the family has a fatalistic approach to accidents:. "Expected to happen," "Always happens," and "Expected of children." This attitude is not correcting home hazards.

Many people are victims of early acquired habits which they take for granted. They will say, "I was always quick on the trigger and I guess I was too quick this time. Mother was always like that."

"An accident is God's punishment. People who sin get their just rewards," is sometimes expressed. People once thought an accident was the result of wrong doing. If this were the case little could be done to reduce accidents, but much can be done to cut down on accidents and resulting injuries.

They also have feelings of omnipotence which lead them into trouble. They believe that accidents will happen always to the "other guy" and not to them. This attitude can be fatal.

The Safe (?) Home

Most of us regard our home as a place of safety and security. At home we think of ourselves as safe from dangers of the highway and other influences of the outside world. Because a man's home is still considered "His Castle," we feel free from occupational hazards (which are fewer these days) and vacation accidents which may occur at the beach or campsite. But home accidents are a frequent cause of injury. On an average, one person in 50 during a year is disabled for one or more days by injuries received in home accidents. Of the 4.2 million injuries that take place in American homes annually, about 110,000 result in some permanent impairment.

One-third of all non-fatal accidents and one-fourth of all fatal injuries occur in and around the home. An accident can occur in any square foot of the home environment.

The most prevalent types of accidental deaths arise from highly familiar hazards: collisions — from moving vehicles; drownings — from water; burns — from fires; and shootings — from guns.

Accidental falls killed 583 persons in Florida in 1972. Many of these occurred in homes. Some people say that education can put a stop to accidents, but Aunt Gertie was warned dozens of times not to stand on boxes to reach the top shelf of her kitchen cupboard or to rearrange drapes. She should have used a stepladder or step stool to reach high objects.

SAFETY IN THE KITCHEN – A wise mother turns the handles of pots toward the back of the stove so that children, and adults, will not overturn the contents onto themselves.

Habits are more powerful than knowledge. The Smith family's home is usually cluttered with toys, piles of magazines, clothes and miscellaneous items. Tom Smith was always going to fix the bottom step of the stairs — but tomorrow never came. He did not fix it until Aunt Hattie stepped on the broken step and snapped her ankle.

Bad habits usually rule a household and the stairs become cluttered again within a week after Jennie Smith has cleared it of magazines, toys and daughter Susan's electric hair dryer.

Falls could be prevented by adequate lighting in the home and around the yard. Night lights could prevent falls and accidents in the dark. Lighting for the stairways should have been controlled from the top and bottom of the stairs. Also, gates at top and bottom would keep creeping babies from falling. Railings on the stairs would have also prevented falls. Nonskid backing on scatter rugs removes most of the hazards.

In the bathroom, a rubber mat in the tub, or adhesive strips on the bottom could prevent falls. A light within easy reach of the bed could prevent falls when a person gets up at night, and cords to the electric blanket, clock, radio and fan could be placed so no one would trip over them.

Outside, the proper use of ladders to fix eaves and trim trees is important. Power mowers and electrically-powered hedge trimmers reduce tiresome, time-consuming chores, but they are dangerous unless operated correctly. When John Roberts operates his power

mower, he wears solid shoes, and keeps children and pets a safe distance away. He makes sure the lawn is clear of sticks, stones, wires and debris. A power mower's blade can hurl an object some 300 feet so fast that a person wouldn't know what hit him. Electrically-powered clippers should never be used when the shrubs are wet or damp. John keeps the electric cord away from the cutting blade, wears the proper shoes, keeps his eyes on his work, and his hands away from the cutting blades. He also reads the instructions thoroughly before operating the tools and heeds the warning labels.

Tales of Two Families

The Smith family was having guests for dinner. Jennie Smith started to bake a cake for the occasion. She got out her ingredients and plugged in the mixer. She snapped the beaters into the mixer's sockets, but in her haste, her elbow accidently hit the dial and the mixer turned on — with her fingers still holding the beaters.

A scream brought Tom to the kitchen. He unplugged the mixer and removed Jennie's bloody fingers from the beaters. X-rays taken at the hospital showed no broken fingers but the physician put them in splints to keep them immobile. Jennie learned a lesson: The mixer should never be plugged into the outlet until the beaters have been securely fastened and fingers out of the way.

Mary Roberts, on the other hand, is a safety-minded person. She keeps cutting knives in a knife rack, not in the silverware or utensil drawer. She turns handles of pots and boilers toward the back of the stove so small children, or adults, will not accidently overturn the contents on to themselves. Because loose-fitting clothes with flowing sleeves, ties and projecting pockets might catch onto equipment, Mary wears well-fitting clothes in the kitchen.

She keeps her kitchen appliances in good condition and never handles them with wet hands. If she has to leave her ironing for any reason, she turns off or disconnects the electric iron.

Mrs. Roberts also has a good after-the-party habit that protects the family from fires. She runs her hands behind the cushions on chairs and sofas, or completely removes the cushions, to check for smoldering cigarettes that may have fallen unnoticed.

When the Roberts family recently bought a new refrigerator, they stored the old refrigerator temporarily with the door against a

wall to keep young children from climbing in and becoming suffocated. (They could have also locked the door shut with a chain and padlock.) When the Roberts junked another old refrigerator, they removed the door and had the appliance carted away and destroyed.

John Roberts has a workshop in the garage of their home. He locks up all of his power tools which could attract inquisitive youngsters. He only uses small electrical handtools that are properly grounded and never uses them with an extension cord. He plugs them directly into the wall-outlets. He removes all oily rags and rubbish because of fire hazards. He also knows that defective, unventilated gas and oil heaters and cookstoves are dangerous.

John checks the electrical wiring in the home at regular intervals. He replaces blown-out fuses with ones of the proper size. He never uses oversize fuses, or tinfoil-wrapped pennies because the wires could become overheated and cause a fire.

The people in the community in which the Smiths live have frequent garage or yard sales. Another name is "flea market." These are as popular as pizza and ice cream and as compelling as a "free trip to Hawaii" sweepstake.

Tom and Jennie Smith dote on garage sales which are usually held by people who are moving to smaller houses or apartments, people who have an attic or basement that is overflowing with accumulations of years of housekeeping, or people who want to make an extra buck. Garage sales are attended by friends, neighbors, relatives, junk dealers, antique collectors, and people who want to save a dollar. The theme of the garage sale is **Caveat emptor** (Let the buyer beware).

Sometimes the Smiths can find real bargains, but at a recent garage sale, they bought

* a baby crib for Junior, but it had improper slat spacings (the baby could stick his head between the slats), and the latches were unreliable;
* old furniture for their children's rooms, but it was painted with paint having a high lead content;
* an electric drill that had defective parts and a removed ground plug;
* toys which came apart and revealed eye-threatening wires and removable eyes (which the children could swallow); and

* old chipped cooking utensils that contained breeding places for bacteria.

Protecting the Baby

Safety in the early years of their children's lives depends to a great extent on the Roberts. They choose baby toys because they are safe — sturdy rattles; brightly-colored objects that could be hung over the crib; stuffed animals and dolls with eyes and buttons that could not be pulled off; large soft, colorful balls, and push toys with round edges.

When Mary Roberts places the baby in his crib, she makes certain the bars are up and removes all pillows. Because the baby has a habit of chewing on furniture and on anything handy, the Roberts have painted the crib, window sills and all painted surfaces with lead-free paint. When bathing the baby, Mary always checks the water temperature to prevent scalding him, keeps all electrical appliances and hook-ups outside the bathroom, and never leaves the baby alone in the bathtub.

As the baby grows older, he starts to crawl and climb. When he graduates from the crib to the floor, Mary picks up everything that he could get into. She puts gates at the top and bottom of the stairs, and across the doorway to the kitchen. She keeps windows guarded with gratings and sturdy screens.

All medicines are kept out of the reach of the children. Cleaning compounds and soap powders are kept in locked cupboards and closets.

To protect their preschool children, the Roberts make a practice of setting a good example. Because growing children learn from them, the Roberts practice three important warnings: HOT — SHARP — and NOT TO EAT.

School-Age Children and Injury Control

Because their school-age children are very much on their own much of the time, the Roberts have taught safety by example and discipline. They limit warnings and discipline to safety essentials — such as cross the street only on the green light, not to play with matches, and never play in the street.

HORSEPLAY – Injuries sometimes are the results of horseplay between brothers.

In and around the home, on the playground, at school, children have a habit of pushing and shoving each other in general "horse-play." They should be taught to recognize and solve accident problems — not merely be given rules to avoid hazards. Examples set by parents, teachers and other adults are one of the best ways of teaching safety. Because Tom Smith does not wait for the green light to cross the street, his children have nearly been hit by cars several times on their way home from school. Parents should take this responsibility and not expect to relinquish it to teachers, schools, city, county, state or federal authorities. Children should be taught — by their parents — the dangers of going places where they should not be or doing things that are dangerous. Every year a number of children are drowned or injured while swimming in Florida's barrow pits. Parents, civic groups and the law say, "fences should be put up to keep out children" and "signs should be posted." But fences and signs will not keep out children — unless they are taught by their parents to stay out of such places.

Every few months a new fad for children comes along. Remember the skate boards and hula hoops? Some childhood

playthings, such as roller skates, bicycles and cap pistols, are always with us. Each presents a different hazard that must be dealt with.

Seasonal activities present their particular risks. At Halloween time children have costumes that are often made of flammable material and wear masks that prevent them from seeing where they are going. Christmas has its dangers. Combustible materials come in the form of gift wrapping and decorations. Electric lights and ornaments need to be checked before being placed on the Christmas tree. Children should be taught to be aware of these hazards and handle them with the cooperation of their parents.

Should children be taught how to carry glass objects? If they need to know they should be taught how to do it properly.

Should children climb on a jungle gym? This aids their physical development, but they should be taught to climb safely.

Equipment on the playground should be checked for loose connections, rust, splinters and rickety moorings. If it is not strong enough to hold John Roberts, he feels it is not safe for his children. He also teaches them to avoid swings and other playground equipment that can be dangerous when in motion.

PROTECTIVE EQUIPMENT – A public health nurse and shop teacher from a vocational school examine some of the safety equipment used to protect the eyes of student welders.

The Roberts regularly go over their lawn and remove the debris that collects. All holes and drains are covered and a fence has been built around a portion of the yard to keep the younger children from wandering away. The children are taught not to run into the street after a ball, but to look both ways and make sure no cars are coming before they try to retrieve the ball. They are not allowed to play in the street or driveway of the home and taught to look both ways before crossing the street.

When the Roberts go to the lake or beach, the children always swim in supervised areas and use the "buddy system" of checking on each other — even when swimming in protected beaches and pools.

Boys are more vulnerable when it comes to injuries. The death rate of accidents for boys five to nine years of age is twice that of girls of the same age. At age 10 years, the ratio is three boys to one girl; in high school, the ratio jumps four to one, and in college it is nine to one.

The dangerous areas in the lower grades are the playground, gymnasium and school corridors and steps. With adolescents, the dangerous places are the gymnasium, athletic fields, laboratories and vocational shops. College youths have more frequent and severe accidents than non-college youths.

Accidents defeat the purpose of physical education, athletics and recreational programs. Most school accidents are preventable. Their occurrences can be reduced. The National Safety Council, however, reports that 67 percent of all school accidents involving boys and 57 percent of those involving girls occur during school activities while the children are under the supervision of physical education teachers, athletic coaches and recreational leaders. Vigorous activities possess inherent dangers which are not always apparent. The needless risks must be reduced in these activities without reducing the spirit of the youngsters.

Some students are always participating in horse-play and think it is smart to stick their feet into the aisles and trip other children. This needs to be discouraged. Running on stairs and sitting on railings are also dangerous. One Jacksonville high school student fell to her death because she was sitting on the railing surrounding a stairwell.

Grandparents and Injury Control

The older members of the family are the most frequent victims of falls — the leading cause of home injuries. Eight out of 10 persons who die of falls in the home are over 65 years of age. There is a death rate of 82.7 per 100,000 population in the age group of persons over 75. The older person should be aware of his limitations. Too frequently he tries to do more than he is physically capable and this leads to tragedy.

Where there are older persons in the home, each flight of stairs should have handrails. The stairs should be well-lighted, free of litter and have non-slip steps. Booby traps, such as scattered rugs, electric cords, foot stools, pets and toys left by grandchildren, are frequent causes of accidents and injuries. Furniture should be placed so that there is a clear path through each room. All extension cords should be fastened out of the way so they cannot trip faltering or shuffling feet.

Handrails on the bathtub and toilet seats can be useful. Non-skid mats or strips in the bottom of the tub will prevent falls. All caustic or poisonous materials should be kept out of the medicine cabinet where a person who is half-asleep or has poor vision will not mistake them for his regular medicine.

When grandchildren or other small children come to call, grandmother should be sure that all cleaning compounds, caustic materials and bleaches are locked up or out of the reach of the children.

Firearms — A Source of Injury and Death

Most guns are made for hunting or protection, but more firearm accidents occur in the home than in the fields or woods. Approximately 1,400 persons die each year in the United States from firearm accidents. Ninty-six individuals died in Florida in 1972.

In the five to 14 age group, shooting ranks fourth after automobile accidents, drownings and fires, as the cause of death. Some children shoot themselves; some are shot by parents or other adults; most children are shot by other children who have found a gun and do not know how to handle it.

Studies have shown that the owner of a firearm involved in shootings is most often the parent of the victim. The gun is usually kept in the parents' home, easily accessible (in a night stand). When children find a gun, their first action is to aim it at a playmate or examine it. It is then that the gun is discharged, shooting a bystander, hitting the playmate, or the one holding the gun.

Boys are more frequently involved in firearm accidents than girls. Toys given to children are frequently models of guns. Popular games enjoyed by small boys are "cowboys and Indians" and "cops and robbers." Often they try to imitate the violence seen in television Westerns and private eye shows.

Firearms should be kept unloaded and where children cannot get to them. Youngsters should be taught never to point a gun at anyone. A good time to start this training is when they are given toy pistols as playthings.

The Modern Killer — The Automobile

The automobile is the major cause of injuries and death, causing 47 percent of all accidental deaths. Some 56,000 persons died in automobile crashes in 1972 in the United States. About 2,500 individuals died of vehicle or vehicle-related accidents in Florida during the same year.

FORBIDDEN SWIMMING AREA — People continue to swim in Florida's barrow pits despite the number of persons killed and injured each year.

One of the major causes of highway accidents is "speed too fast for conditions." Since the reduction of the traffic speed due to the energy crisis, the United States has witnessed a 25 percent reduction in traffic fatalities. Some authorities attribute this drop to the lowered speed rates; safety council officials believe the reduction is because there were fewer motor vehicles on the road.

Alcohol contributes significantly to the number of highway fatalities in the United States. Some officials believe alcohol is involved in 50 percent of the fatalities; other safety experts feel that it may be involved in 80 to 85 percent of accidents.

Public health and safety authorities stress education in solving the problem of alcohol and driving. People who are convicted of driving while intoxicated in Duval County are assigned by the courts to attend a corrective driving course at the Jacksonville Safety Council. After a few hours of the course, safety officials say most individuals begin to realize that they have a problem of alcoholism.

Some people advocate tougher penalities, such as are found in some foreign countries. People in Sweden who serve liquor to drivers who are subsequently involved in accidents are held equally responsible for the accident. In Turkey, first offenders of driving while intoxicated are taken out into the desert to find their way back. People in Ecuador who are convicted of causing a death while driving under the influence of alcohol face drastic penalities. They are shot by a firing squad.

In the United States a death from motor vehicles occurs every nine minutes and a person is injured every 15 seconds. Thirty percent of all motor vehicle deaths occur in the 15 to 24 age group. For this group the automobile is a symbol of economic and social status. The vicarious sense of power in the operation of a motor vehicle has been cited as an important satisfaction in the lives of many young people who are denied outlets for yearnings in other areas of their lives.

The symbolic value of the automobile may be particularly important for the adolescent and young adult for it is said to represent freedom and escape, both real and symbolic, from parental control and supervision. It is one of the most important factors in the adolescent sub-culture.

The automobile presents competition to academic programs and to the school's basic purpose of education. The view is commonly held by school authorities that the combination of a driver's license

YOUNG ADULTS INVOLVED – Thirty percent of all motor vehicle deaths occur in the 15 to 24 age group. Much of this is because of the lack of experience, carelessness, and the attitude that "accidents happen to someone else."

and the ownership of a motor vehicle is probably the most powerful anti-intellectual force that schools have to face.

Traffic deaths involving the 15 to 24 age group is important because they cut short life in its most productive years. Youths of this age have a highly disproportionate number of one-car accidents which involve running off the road, overturning, colliding with fixed-objects, errors in judgement, losing control, swerving, skidding. Such accidents occur because the youths are frequently inexperienced with handling motor vehicles, or because of fatigue or falling asleep.

To combat the lack of experience with automobiles, schools have courses in drivers' training that change young people's attitudes and give them better judgment in driving.

Accident repeaters usually have a history of contact with judicial and public service agencies, juvenile and adult courts, credit and

collection agencies, venereal disease and public health clinics, and social service agencies. They frequently have attitudes of tenseness, over assertiveness, arrogance, belligerence, egotism, irritability and unstability.

Poisonings and Poison Control Centers

One hundred and sixty-nine persons died of poisonings in Florida in 1972. These were people who died of drugs, medicine, gases, vapors, pesticides and other materials. Hundreds of other people were poisoned, either accidentally or by their own hands and were seen in the poison control centers.

People are poisoned because they fail to read labels on medicine bottles (they are too sleepy, ill or neglectful), or because they forget that they have taken the medicine. Older people take overdoses of medicines because they are senile and have poor eyesight.

The most common substances children swallow are aspirin, internal medicines, cleansing and polishing agents, insecticides, herbicides (weed killers) and kerosene. Children are not only unable to read labels, they do not understand the dangers of drinking and eating an unknown substance. They will swallow anything they can get into their mouths.

Children should never be told that medicine is "candy." Many times they climb up and help themselves to the contents of a bottle in the medicine cabinet or their mother's purse — thinking they are getting candy. Lack of proper supervision is often noted as the cause of many poisonings of children.

Discarded medicine bottles should be disposed of properly. Many children are poisoned because they find bottles in the trash and swallow the contents. Accidental poisoning of children is easily prevented by keeping medicine out of the reach of children and in children-proof bottles. A new federal law requires pharamacies to sell medicines in containers that are children proof. However, the customer may request the older type of bottle.

Florida has 20 poison control centers where people can get assistance with accidental poisonings. The centers maintain files with the trade names of products frequently involved in poisonings. The information also contains the chemical ingredients and the antidote or treatment for that particular poison.

Following is a list of the poison control centers and their addresses and telephone numbers:

CITY	HOSPITAL	ADDRESS	TELEPHONE NUMBERS
Bradenton	Manatee Memorial	206 Second St., E.	746-5111
Daytona Beach	Halifax District	Clyde Morris Blvd.	255-4411
Ft. Lauderdale	Broward General	1600 S. Andrews Ave.	525-5411
Ft. Myers	Lee Memorial	2776 Cleveland Ave.	334-5286
Gainesville	Alachua General	912 S.W. 4th Ave.,	372-4321
	J. Hillis Miller	University of Florida	392-3261
Jacksonville	St. Vincent's	Barrs & St. Johns Ave.	389-7751
Lakeland	Lakeland General	Lakeland Hills Blvd.	686-1111
Miami	Jackson Memorial	1700 N.W. 10th Ave.	371-9611
Miami Beach	Mt. Sinai	4300 Alton Rd.	674-2121
Naples	Naples Community	350 Seventh St., N.	649-3131
Ocala	Munroe Memorial	1410 S.E. Orange St.	732-1111
Orlando	Orange Memorial	1416 S. Orange Ave.	841-8411
Panama City	Memorial	600 N. MacArthur Ave.	769-1511
Pensacola	Baptist	1000 W. Moreno St.	434-4011
St. Petersburg	Bayfront Medical	701 6th St., S.	894-1161
Sarasota	Memorial	1901 Arlington Ave.	955-1111
Tallahassee	Tallahassee Memorial	Magnolia & Miccosukee Rd.	877-2171
Tampa	Tampa General	Davis Islands	253-0711
West Palm Beach	Good Samaritan	1300 N. Dixie Highway	655-5511

Florida also has 12 auxiliary poison control centers located at hospitals in Apalachicola, Bartow, Ft. Walton Beach, Key West, Leesburg, Melbourne, Plant City, Pompano Beach, Punta Gorda, Rockledge, Titusville and Winter Haven.

MEDICAL CONTROL – A sanitarian from the county health department checks the medicine cabinet of a nursing home.

Programs to Control Injuries

Safety and injury control are an integrate part of each county health department's on-going program. It is natural for sanitarians and public health nurses who serve on inspection teams of hospitals, nursing homes and other institutions to look for safety violations which may need correcting. The State Fire Marshall's Office and municipal building, electrical and plumbing inspectors also check for safety code violations in public and private buildings.

Safety is dovetailed into the environmental health programs. Sanitarians are expected to see potential accident sources in child day care centers, schools, housing, industry, trailer parks and see that the hazards are eliminated. They also participate in product recall. One such recall involved drums imported from Haiti that were covered with skin containing anthrax spores.

Foster homes which taken children under the Division of Family Services program are checked for cleanliness and safety. Sometimes safety measures, such as the addition of fire extinguishers, have to be suggested.

If a public health nurse notices a hazard, such as improper use or storage of flammable materials, toys, oily rags and cleaning compounds, and unattended children or older persons, during a home visit, she will make suggestions for safety precautions. She also follows up on accidental poisonings for correction and education.

Some county health departments have other programs that promote injury control.

Volusia County Health Department's health educator gives health and safety talks before school groups, Scouts, city recreational department employees, and in neighborhood clinics. Courses are offered to baby sitters on first aid and household safety.

A First Aid and Health Training Program is presented to school teachers of Escambia County through the cooperation of the Escambia County school system and the health educator of the County Health Department. An Escambia County health field worker checks emergency room records of local hospitals to determine what patients were injured by consumer products. If a determination is made that a product were responsible, a report is sent to the Product Safety Office of the Federal Government.

The Hillsborough County Health Department has a public health nurse who promotes safety through working with industry, schools, voluntary health and governmental agencies. Such projects as the

procuring of safety glasses for students who use welding equipment in vocational training schools have resulted from such activity.

The Division of Health is interested in the prevention of injuries. Since late 1965, it has promoted Medical Self-Help training and during the last eight years more than 432,000 persons have availed themselves of this emergency care course. It also promotes emergency medical services and the training of emergency medical technicians in behalf of transportation of the injured and sick. It is also working with the National Center of Poison Control for the establishment of a terminal in Florida that will be connected to a computer that will give direct access to the latest data on poisonous substances. Poison control centers in Florida will have access to this terminal.

Education, Economics and Countermeasures of Injury Control

People would like it if injury control would require measures that exact little action, cooperation and "thinking" on their part.

Just as people must be educated and motivated to have their children immunized, so must they be educated to face the need for injury control. The high accident rates demand that something be done.

Education is needed in all phases of the injury sequence:

* In the products that can prevent injury — fences around home swimming pools, flame-proof materials in clothing, child-proof medicine bottles.
* In the use of teaching of emergency measures — such as life-saving, first aid, and other rescue techniques.
* In convincing the public that hazards in the environment can be controlled, reduced and eliminated.

In addition to educating the general public, decision-makers and lawmakers need to be influenced. Public and voluntary health agencies have influenced legislatures to act on many health problems — such as communicable diseases, dangerous products, and emergency medical services. It is not easy to influence legislators to make

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PHOTOGRAPH CREDITS – Photographs on pages 214, 232, and 238 courtsey of Florida Publishing Company.

CHECKING THE GROUND WIRE – Before using his electrically-powered hedge clippers, this gardener checks his equipment.

changes in physical hazards which will protect the public. Some well-recognized and wide-spread hazards in the environment remain year after year supported by powerful institutional interests. Automobile modifications have been urged by some people.

There is little evidence that injury control countermeasures have been chosen on the basis of what will have the greatest payoff in reducing injuries and deaths. One factor that tends to discourage the use of the cost-benefit approach to injury control is that the cost of injuries usually is paid by the consumer whereas the cost of reducing the hazards in the product is borne by industry.

Results are Needed

Too many Floridians are playing Russian roulette when it comes to injuries. Public health officials wonder that more accidents do not occur.

If you watch people around you, you will see them taking unnecessary risks — in their automobiles (accidents were up three percent in 1972); around their homes; on the playground; at the beach or lake. Can you determine who are the careless ones, such as Tom and Jennie Smith, and who represents the Roberts family?

Are you familiar with situations in your environment that are hazards to you and your family? Can you determine which of your

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THE KIDNEYS: Diseases and T

EDUCATION NEEDED – Safety and public health officials believe that education is needed to change the public's attitude toward accidents. They say that 50 to 85 percent of traffic accidents involve alcohol.

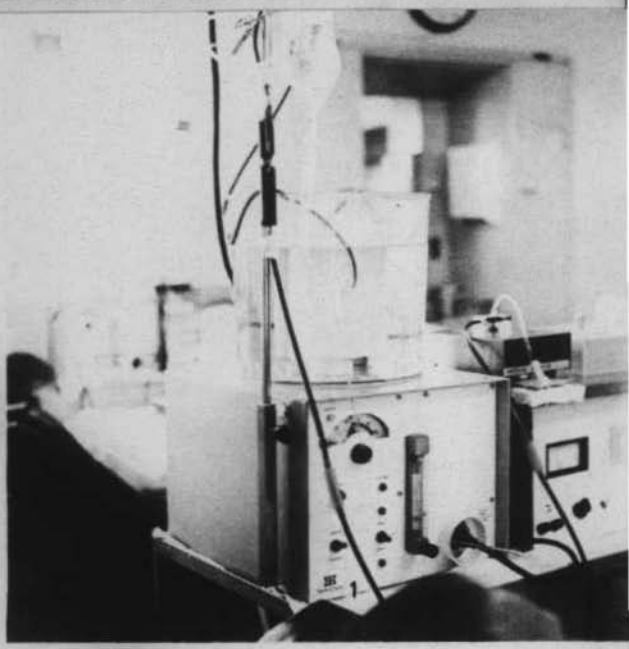
acts of the past few hours were of an unsafe nature? Do you believe that accidents can be avoided?

There is much you can do to avoid unnecessary injury. When you and your family are aware of how accidents happen, you can avoid being one of the 117,000 persons who would be listed as an accidental death this year, or one of the 11.5 million persons who had disabling injury. What is needed in injury control is results.

People who are interested in learning more about injury control, or have a suggestion for its abatement, can write:

Emergency Medical Services, Division of Health, Department of Health and Rehabilitative Service, Box 210, Jacksonville, Florida 32201.

A LIFE SAVER – (Cover photo) – The artificial kidney (foreground) helps keep this man alive by cleansing his blood of wastes. This must be done two or three times a week.



THE CONNECTIONS – The artificial kidney (1) can be connected to the plastic shunt or surgical fistula placed in the arm of an individual (2); or in the leg (3) should the veins in the arm be fragile.

THE KIDNEYS: Diseases Treatment

Carol, a girl in her late teens, sat in a lounge-type chair in the dialysis center with two canulas protruding from her forearm. Through plastic tubes attached to the needles, blood was flowing. Her blood. It was being pumped out of her body, through a filter-type machine (an artificial kidney), and returned to her body. Carol's kidneys had stopped their life-maintaining work of cleansing her blood of impurities. Without this special "dialysis machine," she would have no chance to live.

George, a middle-aged man, was visiting another Florida dialysis center and was talking to one of the patients. "I had been in poor health for quite some time, and I was told by a kidney specialist after thorough examination that my kidneys had permanently ceased to function. I was immediately placed on dialysis. Since that time three years ago, I have been very fortunate. After being on dialysis for two years at this center, my brother in St. Louis was found to be a compatible donor and was kind enough to donate one of his kidneys to me. I was transplanted a year ago which freed me from my dialysis treatment. My transplant was successful, and I feel just great. I'm back to my regular job and thanks to the people here at the center, and of course to my brother, I'm again able to look forward to a lot more years of productive life."

You, a family member, or a friend can experience chronic kidney failure. Without prompt medical assistance, death would probably occur within two or three weeks. Twenty years ago the dialysis procedure was not available. The inevitable fact had to be faced: There was no alternative to death.

Even 10 years ago, death was a near certainty unless one was wealthy. The unique treatment of dialysis was financially devastating and the mechanisms for therapy very scarce. Another mode of therapy, kidney transplantation, would cost $10,000 to $40,000 if a compatible donor could be found.

Today, thanks to the amazing discoveries in the field of renal medicine, a patient has an excellent chance of returning to a relatively active and productive life.

This issue of *Florida Health Notes* will tell you about the functions of the kidneys and the diseases and disorders that can cause them to fail. We will also tell you about treatment by kidney transplantation and hemodialysis (a treatment which artifically removes metabolic wastes from the blood by passing it through the cellophane membranes of an "artificial kidney"). We will also tell you of the work of the Division of Health of the Department of Health and Rehabilitative Services and the voluntary health agencies which have rendered great service to chronic kidney patients.

A Matter of Life or Death

Chronic kidney disease strikes over 400 Florida residents every year. No one is free from the threat of this condition. Although it mainly affects persons in their mid-forties, it can occur in the very young and the elderly, either sex, and socioeconomic group, and in any geographic location.

Man's early writings suggest the presence of kidney complications. The ancient Egyptians indicated it. The Greeks were aware of edema — the collection of fluids in the tissues of the body. Hippocrates described symptoms of acute nephritis (kidney infection). He commented on uremia and proteinuria (collection of poisonous wastes in the blood) due to kidney malfunction. Kidney disease was described by a physician in Bologna, Italy, in the 13th Century. Yet 25 years ago, the word *nephrologist* (specialist in kidney diseases) was rarely found in medical dictionaries.

FLORIDA HEALTH NOTES

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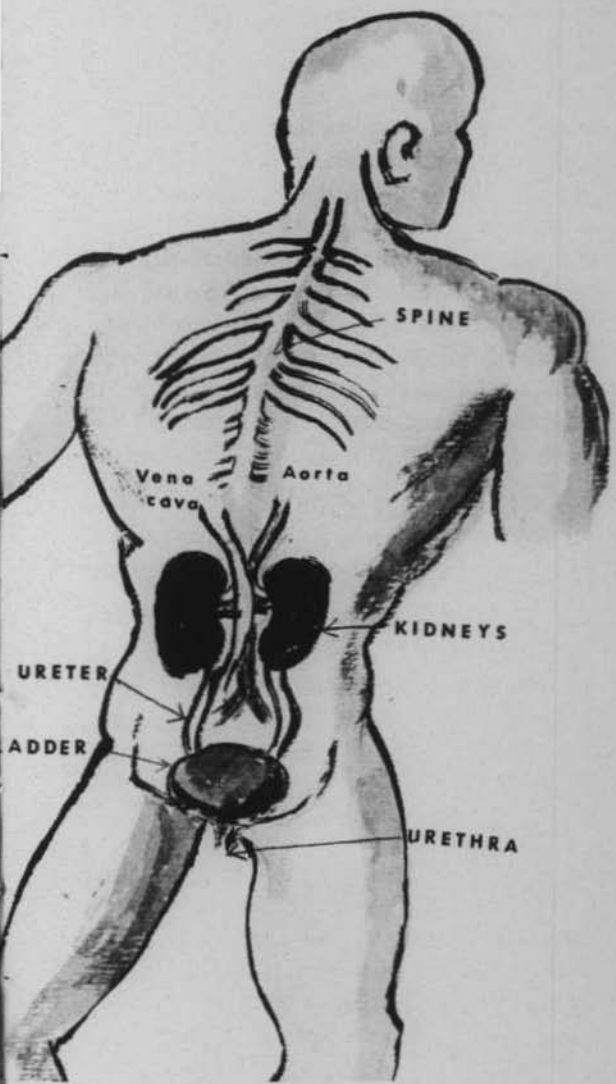
In the past 20 years, great advances in nephrology have been made. It has become a prominent field of medicine. The first practical artificial kidney was developed in Holland during World War II. The first kidney transplant was performed in Boston in 1947 in which one identical twin was the recipient of a kidney from the other twin. The first hemodialysis treatment was performed in Seattle in 1960. The patient lived for 11 years without his kidneys functioning. Today, a chronic kidney patient may indefinitely extend his life with hemodialysis treatment or kidney transplant.



KIDNEYS' LOCATION – These "bean-shaped" organs are located on either side of the spine in the small of the back (lumbar region). The organs filter some 200 quarts of blood in 24 hours.

The Kidneys – Filters of the Body System

What are the kidneys? They are bean-shaped organs located in the small of the back (lumbar region) on either side of the spine. Each weighs less than eight ounces and is approximately four inches long, two inches wide, and one inch thick.

The kidneys are an extremely complex part of the human "machine." They are dedicated to maintaining the chemical balance of the body, the regulating of the volume and composition of fluids, and the eliminating of harmful substances. They are the "super filters" of the body.

These unbelievable filters have certain actions and activities not fully understood. Much remains to be learned. Each kidney is composed of one to three million tubular structures called nephrons — the basic unit. (A nephron is made up of a tuft of tiny blood vessels — known as glomerulus, and an attached tube or tubule.) As blood enters the kidneys through the renal artery, it is filtered and purified, and returned to the blood system by way of the renal vein. The organs, acting as screens, retain 99 percent of the water and most of the small blood substances and chemical molecules. Waste, as urine, is channeled from the body through the urinary system.

A healthy kidney filters about 200 quarts of blood (three times the body weight in water and salt) every 24 hours. It returns some 198 quarts to the blood stream, producing about seven drops of urine per minute.

The kidneys carry out all of these steps without conscious control. Yet the kidneys are adaptable. They can adjust to regulate the flow of urine so that during periods of sleep the bladder which collects the urine will not fill too rapidly.

If both kidneys stop functioning completely for any reason, death follows inevitably within three to four weeks. However, nature has been most generous. We have two kidneys. Each has the ability to function on its own. One kidney can do the job alone. In fact, an individual can live with only a small portion of one kidney functioning.

Importance of Kidney Malfunction

There are many disturbances of the kidneys. Some may cause illness, yet not significantly impair kidney function. Others may affect the physical function of the kidneys, or result in complete renal failure. Not only can kidney function be damaged, but since the kidneys maintain the chemical balance of the entire body, kidney malfunction may have far-reaching results. Renal failure may be caused by infectious diseases, reaction to drugs or other agents, congenital malfunction, circulatory disturbances and metabolic diseases.

Deaths due to renal disease are in reality only part of those in which diseases are listed as "primary causes." It is well known that many deaths attributed to such causes as hypertension and its complications, to diabetes and septicemia (infection in the blood) have underlying renal chronic disease reasons.

Few major illnesses fail to involve the kidneys. Renal disorders are far more common than generally recognized. In the United States no fewer than 60,000 persons die annually from some form of kidney involvement. An estimated 2,000 Floridians die as the result of kidney disease each year. It is estimated that in the state at least 400 new cases of chronic, or end-stage kidney disease, enter treatment facilities annually to undergo dialysis treatment or kidney transplant. Many Floridians have an unrecognized kidney malfunction, disorder or disease.

Employment time loss due to renal disorders is immense and is an important economic factor. The National Kidney Foundation statistics indicate that kidney problems are the No. 1 cause of work hours lost for American women. These statistics showed kidney troubles to be the second highest cause of "sick leave" for those in the under 25-age group; total population figures show renal related manhours lost to be the fourth highest in the nation.

Causes of Malfunctioning Kidneys

There are several disorders of the kidneys that can cause them to stop working properly. Some of the more important disorders include inflammation of the kidney tissues and abscess within the kidney or in the surrounding tissues.

DIALYSIS CENTER – Kidney disease patients sleep, relax, watch television or find other amusements while being dialyzed in the Kidney Center. Most of these centers are supported and operated by hospitals and physicians. Some of the artificial kidneys are donated by local kidney foundations.

One of the inflammatory disorders (pyelonephritis) is common in all age groups. One or both kidneys can be involved. There may be one or more attacks, ranging from mild to severe in degree. It may be present without visible symptoms. If not treated, chronic conditions may result in permanent kidney damage. Early detection and adequate treatment lead to complete recovery. Rest, antibiotics and heavy fluid intake are often the recommended treatment.

There are several disorders which occur within the kidneys. They include acute or chronic glomerulonephritis (inflammatory changes involving the capillaries in the kidneys), nephrosis (degeneration of the linings of the renal tubes), benign, or malignant tumors, or congenital malformation.

Chronic glomerulonephritis may be present in the individual for many years, but only proper medical examination can detect its presence. Ultimately it results in uremia. Diets and drugs can be used to control the disease but there is no known cure. Acute glomerulonephritis usually follows certain upper respiratory streptococcal infections and is most often of short duration with complete recovery. Early treatment of this infection may prevent the development of inflammation of the kidney. Penicillin is most effective in strep infections but it cannot help once glomerulonephritis has rendered irreparable damage.

Nephrosis is non-inflammatory. It causes large amounts of protein molecules to escape from the blood into the urine. The exact cause is unkown but due to the loss of protein, fluids accumulate in the body and swelling (edema) results. Steriod hormones (such as cortisone) can control this nephrotic condition for long periods of time and patients can lead a near normal life. The disease is more commonly observed in children.

Polycystic kidneys may be a birth defect. The kidney tissues are filled with cysts. If these cysts become numerous and large enough, they can impair the function of the kidneys. When severe, it is critical; if mild, the person will probably live normally and never know about the abnormal organ.

Three non-infectious disorders of the kidneys secondary to other diseases of the urinary tract are kidney stones (nephrolithiasis), obstructive disorders (uropathies) leading to hydronephrosis (enlargement of the kidneys which obstruct the flow of urine) and renal artery or vein constriction.

Kidney stones occur most frequently in middle-age persons. Acids and salts crystallize in the urinary tract obstructing the kidney drainage system. It is not known exactly why or how these stones form. Some symptoms of this disorder are urinary tract infections, pain along the urinary tract, kidney colic and/or blood in the urine. Treatment may include high fluid intake, medication, or instrumental or surgical removal of the stones.

Kidney disorders secondary to other diseases outside the urinary tract include those of the blood vessels, metabolic diseases, toxic effect of certain chemicals, and blood disorders.

One of the most serious renal disorders is acute renal shutdown or failure in which the kidneys do not produce urine. Accidents, incompatible blood transfusions, effects of poisonous substances, and acute nephritis can cause this condition. In many cases patients recover good function of the kidneys, although progress may be slow. In cases of such failure, kidney function must be replaced quickly or death may ensue. Hemodialysis and/or kidney transplantation answers the problem. Temporary dialysis is generally performed until normal kidney function can be restored.

Treatment of Kidney Diseases

Drugs, diet and hemodialysis are the most frequently used methods of treatment for people with kidney disease or disturbances. Diuretics are drugs which tend to increase the flow of urine and reduce edema and chances of cardiac failure, hypertension or some other kidney disease. Antibiotics are employed to combat bacterial infections which damage kidneys. These drugs are also used to prevent and/or treat streptococcal infections which can have serious secondary effects on the kidneys. Steriod drugs are sometimes prescribed for the management of nephrosis. Proper dietary practices in renal failure usually means the lowering of the fluid and protein intake. This hopefully reduces the blood urea nitrogen level. Diets are of the utmost importance in kidney patients, particularly for persons who are treated by dialysis.

One of the most dramatic treatments for kidney failure is known as hemodialysis or treatment by an "artificial kidney." The patient is literally "hooked-up" to the machine. One tube takes the blood from the patient to the machine where it is filtered. Another tube returns the blood to the body. The process removes wastes from the blood, regulates the internal chemistry of the body, and the amount of water in the body as the kidneys ordinarily do. Dialysis patients depend upon the artificial kidney to live and must be dialyzed two to three times weekly. Each treatment takes from four to six hours.

A Case History

One person who lived through dependency upon an artificial kidney was Anne Downes. One day she had acute pain in the lower back and bloody urine. She went to her physician and he referred her to a kidney specialist.

Her husband, Jeff Downes, was told that his wife had a chronic infection which had done irreversible damage to her kidneys. She had to be placed in a hospital to undergo tests and prepare for a treatment called "kidney dialysis" or she would die.

Anne and Jeff lived in a town 125 miles from the nearest dialysis center. This had not concerned them. As a matter of fact, they hadn't known the word dialysis existed.

The couple were in their 30's and had two children. As typical Americans, they had a mortgage, car payments, insurance premiums, and other bills. They were saving for their children's education. Life was good and full for Jeff and his family.

But suddenly all of this changed. Anne had been tired recently but had attributed the condition to the many demands made on a working mother and wife. A visit was made to the family physician who referred her to a nephrologist in the city. This specialist made arrangements with the dialysis center to start treatments. Family and friends came to the rescue. They would take care of the children, the pets and the house.

The next day, Anne was in the hospital. Treatment was begun immediately. After stablization of her condition, a fistula (a tube to which the artificial kidney would be connected) was surgically implanted in her arm. She would have to remain on dialysis for survival. She was released from the hospital and the Downes were very thankful that Anne had a chance to live.

The months went by. It became more and more wearing and difficult to drive the 125 miles to the city two and three times a week for the dialysis treatment and back home again. The physician decided that Anne could be trained for home dialysis.

Anne and Jeff were to learn the procedure and steps for the dialysis at home. Knowledge and counseling were included in their instruction. During the training period, their teachers included nephrologists, nurses, technicians and social workers.

Jeff learned to insert the canulas in the fistula with Anne's help. They learned to monitor, clean and service the machine. Within 12

PREPARING FOR HOME DIALYSIS – This couple is undergoing training so that the wife can receive her life-saving treatments at home. They undergo several months of training (1) in which the husband . . .

weeks they were able to confidently operate the machine themselves which would allow Anne a much more normal life. At home, Anne could have her life-saving treatments at her own convenience when it did not interfere with her other activities. She could once again be a full-time housewife and mother. She could even return to work. The artificial kidney, when placed in their home, made them a family unit again.

In the future Anne may become a candidate for surgical kidney transplantation. In the meantime she must maintain the hemodialysis while awaiting a compatible donor's kidney.

The development of plastic shunts that were emplanted in a patient's limb made possible long-term dialysis. This had the advantage of making the procedure of dialysis relatively painless. There are two problems with plastic shunts: clotting and infection. Many dialysis centers have turned to the surgical fistula.

Five years ago in-center dialysis treatment cost around $40,000 annually. Today, the cost is about half that figure. The average

. . . learns to take his wife's blood pressure (2), monitor the machine (3), and control the flow of saline solution and needed chemicals which are added to the blood(4). During the dialysis, the couple plays games to amuse themselves (5).

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patient receives treatment 10 times a month on a schedule of two or three times a week. Each session on the machine requires four to six hours. The time element and frequency of treatment depend upon the patient's condition.

Important to patients with chronic renal disease is the introduction of the home dialysis device. It has made possible a return to relatively normal life for many persons. The cost has been drastically reduced over the years. In fact, for around $3,000 a machine can be placed in the home — less than the price of a new car. Not every patient, however, can "handle" this treatment. Psychological reactions, motivation, home environment, life style and the presence of someone else who can help are factors dictating the feasibility of home dialysis treatment.

Although we have said that patients on dialysis can lead a near normal life, they must take great care with diet, water intake and avoid infections of all types.

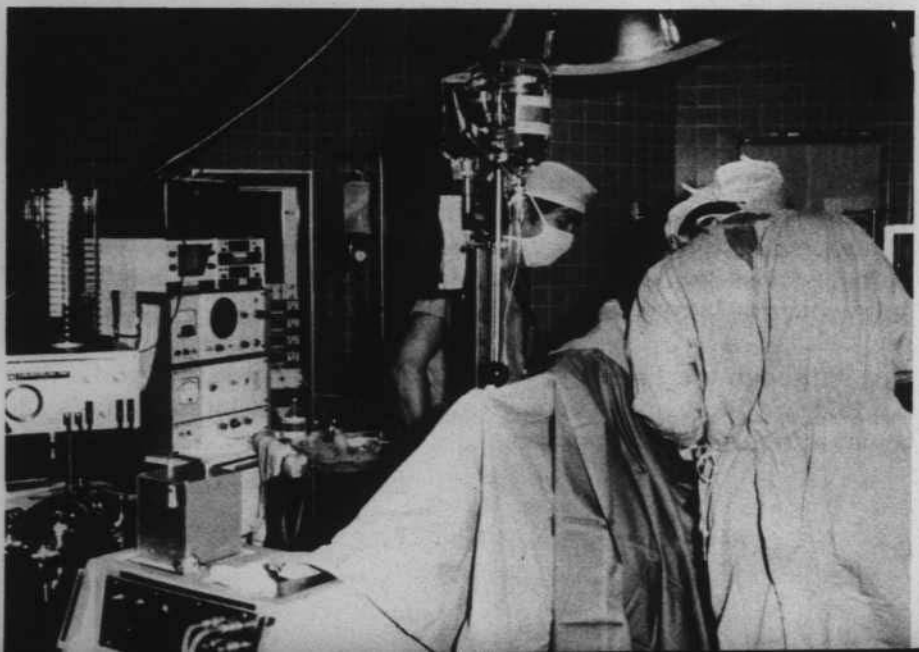
The Kidney Transplantation

Surgical replacement of malfunctioning kidneys with a healthy organ from a donor was once considered revoluntionary. Although the first human kidney transplant was performed in 1947, records of earlier attempts go back as far as 1902. The operation is the surgical implantation of a human donor's healthy kidney into a patient whose own kidneys have ceased to function permanently and irreversibly.

Advances in science make transplants acceptable treatment today. Success with kidney grafts rates second only to corneal transplants of the eye. The Organ Transplant Registry records 14,300 kidney transplants performed world-wide; about 8,700 have been done in 145 American medical institutions.

Experiences have shown that kidneys from donors who are close living relatives (brothers, sisters, children, parents, and sometimes aunts, uncles and cousins) have been more successful than from unrelated deceased donors. However, the trend is away from related donors to persons who have died because transplant surgeons are increasingly hesitant to place living donors in any jeopardy.

SURGICAL REPLACEMENT – Kidney transplantation, first done in 1947, is becoming a common operation in which a healthy kidney from a donor is transplanted into a patient whose own kidneys have ceased to function permanently and irreversibly.



Over an eight-year-period, there has been an almost 90 percent survival rate for kidneys transplanted between siblings. In the same time span, the survival rate for transplants from parent to child is about 84 percent, and survival is approximately 68 percent in the unrelated cadaver donor transplant category.

The primary problem in kidney transplantation is that the body may reject the presence of cells and tissues from an outside source just as it fights off bacteria and viruses. All transplant patients go through this problem. Successful acceptance of the donated kidney by the recipient has been enhanced by the use of powerful drugs called "immuno-suppressants." These drugs have the ability to dull the body's rejection phenomenon. To help the body overcome some of the rejection, the surgeons go through a tissue-typing technique between the donor and the patient. No patient whose kidneys have ceased to function permanently and irreversibly can ever again be said to live a "normal life." For the balance of his life the kidney transplant patient faces medical problems far exceeding those faced by the rest of us.

Some people have agreed to donate some organs of their bodies when they die to other people who need them. Skin tissue, eye corneas, bone marrow, teeth, glands of various kinds, liver, pancreas, and heart have been donated by people. Some organs and tissues are more commonly transplanted than others. Kidneys from a donor can be stored up to 72 hours after the person has died. The donor's kidney can be transported for thousands of miles to a tissue-matched recipient while immersed in a special saline ice slush inside an insulated container.

That People May Live

When the startling news that life can be preserved through dialysis and kidney transplant broke, it became an important and imperative factor in the lives of many people. It was a matter of life and death! When five persons were waiting for dialysis and only two could be dialyzed, who would live? When there were 10 patients on dialysis waiting for transplantation, who would get the donor's kidney?

When the first dialysis and the first transplants were done, the cost was astronomical. Treatment and/or transplant surgery required many hours with a highly specialized staff, extremely technical

equipment, and in the case of dialysis, completely de-ionized water, all of which added to the expense. Only large medical centers had equipment and staffs for treatments of this kind and for transplantations.

As is often the case, headlines brought this problem of life and death to public awareness. A television drama broadcasted a few years ago was about a man who had kidney failure and his efforts to obtain hemodialysis. Sparked by such headlines and drama, voluntary groups led the way in behalf of victims of kidney failure.

Several local kidney foundations have been organized in Florida in the past years. To the members of these organizations goes the credit for raising funds for the very expensive treatment mandatory to the life of kidney patients. The first Florida Regional Kidney Foundation was founded in 1968. It became statewide in 1971 and has been very active in providing leadership and direction to the Kidney Disease Program of the Division of Health. The various Florida foundations are now in the process of becoming affiliated with the National Kidney Foundation.

Voluntary health agencies are devoted to finding the answer to diseases of the kidneys through prevention, treatment and cure. Their programs help kidney disease sufferers through research, patient services, a state- and nation-wide organ-donor program, and education of the public, patient and physician.

Development of a Kidney Disease Program

Kidney disorders — the life and death of people — were brought to the attention of governmental agencies by voluntary health groups and the public who said, "Do something!" The demands led to the establishment of the Kidney Disease Branch of the Division of Chronic Diseases of the U. S. Public Health Service.

A proposed kidney disease program was planned for Florida in 1970. Federal funds were appropriated and through the Florida Regional Medical Program, the project was funded. The Department of Health and Rehabilitative Services appointed the Bureau of Comprehensive Health Planning to organize and implement the program. An analysis and evaluation of the situation of kidney disease in the state were made and recommendations for an attack on the problem were completed.

NETWORK OF SERVICE – Florida is divided into three regions and has three transplant centers and 25 dialysis centers in eight cities.

The Kidney Disease Program was budgeted for $400,000 in 1973-74 and transferred to the Division of Health's Bureau of Adult Health and Chronic Diseases. Chapter 402 of the *Florida Statutes*, which was passed by the Legislature in 1971, provided for programs in kidney disease control. These programs would help finance projects for people suffering from chronic renal disease. The law also established a Kidney Council which acts as an advisory body to the Division of Health.

This council is made up of four nephrologists (including one transplant surgeon), two representatives of hospitals or medical schools having dialysis centers, three representatives of local health agencies, and two members of the general public.

The Kidney Disease Program staff and the Kidney Council work together in the administration of the program which is to

* establish a program which would assist people with chronic kidney disease;

* assist in the expanding of existing programs for the care and treatment of persons suffering from chronic renal disease, including dialysis and other medical procedures;
* develop standards for the operation of dialysis and transplant centers;
* assist in the development of programs for the prevention of chronic renal disease;
* assist in establishing screening programs and early diagnostic facilities;
* use available funds to obtain assistance for medically indigent persons suffering with chronic kidney disease;
* institute educational programs among physicians, hospitals, county health department personnel, and the public; and
* contract with existing facilities for necessary care of patients.

The state is organized into three regions each based roughly on one-third of the population. Presently there are three transplant centers, 25 dialysis centers, and nearly 60 practicing nephrologists in the state.

During the past two years state-appropriated funds have been used to assist in developing and expanding dialysis centers and to develop a statewide kidney transplant network in cooperation with medical schools in Miami, Tampa and Gainesville.

Today there are over 600 Floridians being treated by hemodialysis. About 400 new patients are added to the rolls each year. Over 100 transplants are performed annually on end-stage kidney disease patients.

There is a basic framework of private and public facilities offering quality care to kidney patients, but additional dialysis beds

are needed in certain areas of the state. The need for additional facilities to supply the dialysis and transplant network is being studied so that the increased patient demands can be met.

On July 1, 1973, the Federal Government, through the Social Security Administration, began funding 80 percent of the annual cost of dialysis and 100 percent of transplant costs for all persons having Social Security coverage which includes the spouse and dependent children. One hundred percent of the cost of home dialysis machines and supplies for their operation is also provided.

Prior to this time, the majority of kidney patients were, or had become, medically indigent because of the very high cost of treatments. There are still two drawbacks to this funding. After a patient has been diagnosed as having end-stage renal disease, he must go through a Social Security qualifying period of more than two months of continuous dialysis treatment paid for by personal or health insurance funds. Thirty-five percent of new patients trying to qualify for Social Security benefits cannot meet this two-month financial burden of some $5,000.

Florida's Kidney Advisory Council

Listed are the 11 members of the Kidney Advisory Council who were appointed by the Secretary of the Department of Health and Rehabilitative Services.

Nephrologists: Charles P. Hayes, Jr., M. D., Jacksonville (Chairman); Lawrence Kahana, M. D., Tampa; Sidney Levin, M. D., Jacksonville; and Michael J. Pickering, M. D., Lakeland. **Hospital/Medical School Representatives:** William W. Pfaff, M. D., University of Florida, Gainesville, and B. A. Vaderwerf, M. D., Ph. D., University of Miami, Miami; **Local Health Agencies Representatives:** John Galbraith, Auxiliary Affairs, University of Miami, Coral Gables; J. W. Herbert, Blue Cross of Florida, Jacksonville; and Charles Nordwall, Jackson Memorial Hospital, Miami; **General Public:** Neroy Anderson, Pensacola, and James Driver, Winter Park.

Only 60 percent of the 600 patients now receiving dialysis treatment can meet the 20 percent annual co-insurable costs. This all adds up to growing deficits to the facilities handling the treatment of kidney patients. For example, a total cost of some $10.5 million in 1974 indicates over a $2 million loss if the patients cannot afford the 20 percent for which they are responsible. With the additional burden of new patients seeking treatment each year, the economic dilemma is compounded.

Life and death have now become a matter of dollars and cents for the kidney patient because of these cold, hard facts. Because of this dilemma, the opening of additional planned treatment centers has been postponed, and plans for expansion of established dialysis programs have been aborted.

To meet this desperate need, state funds would be utilized primarily to assist dialysis services developments and expansion in Florida. The grants would be governed by the percentage of new patients who cannot defray the expenses of the two-month qualifying period.

The Future of Kidney Patients

There is a high rate of renal disorders among Florida citizens. Some people say it is because of the in-migration of retired people. Others say water, chemicals, humidity or climate might possibly be the causes.

To combat this critical health situation, the Division of Health's Kidney Disease Program was budgeted for $400,000, plus administrative costs, for the fiscal year 1974-75.

The Kidney Council has made several recommendations, including the development of a statewide kidney patient registry, development of a five-year plan for kidney disease control in Florida, increased support of existing dialysis centers and the establishment of satellite dialysis centers, promotion of the overall program to increase the list of potential kidney donors, and development of a better communication and transportation system for the donor-organ procurement program.

The Division of Health also seeks the assurance that no Florida citizen will be denied treatment for end-stage kidney disease because of the lack of money or nonavailability of equipment in any area of the state.

An acceleration in transplantation is also proposed. The cost of transplant is substantially less than dialysis over a period of time because dialysis is no longer necessary if the transplant is successful. Most important is the restoration of positive physical and psychological health of the patient when the donor's organ renews independent kidney function. With the transplant patient, the dietary limitations are few and the trauma and lengthy treatment associated with dialysis is eliminated.

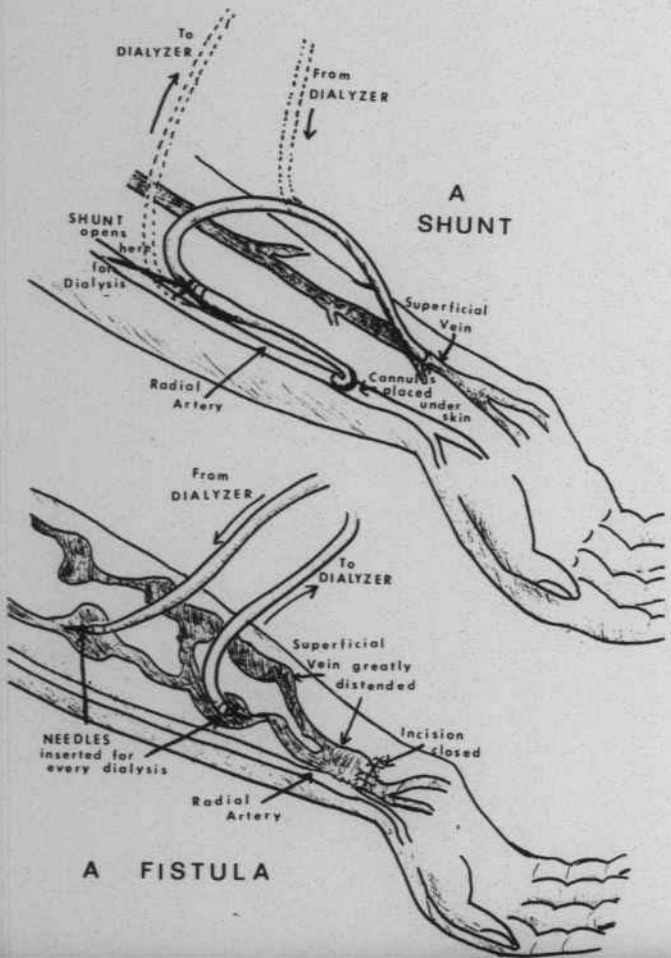
One priority of the Division of Health, which is carried out in cooperation with the Division of Vocational Rehabilitation, is the return of the dialysis patient and the transplant recipient to active employment through re-training, counseling, and availability of job opportunities.

A GROWING NUMBER – About 600 Floridians are being treated by hemodialysis at the present time. Some 400 new patients are added to the rolls each year.

The approach to the program of the future for kidney patients in Florida has become a multi-disciplinary one. Professionals in the treatment and care of patients must have knowledge in anatomy, microscopic structure, physiology, pharmacology, obstetrics, epidemiology, pediatrics, urology, psychiatry, radiology, pathology, cardiology, ethics and religion, polymer chemistry, engineering, life science, bio-mathematics and computers, sociology and economics.

Floridians may be more secure in the knowledge that the federal and state agencies, the Division of Health of the Department of Health and Rehabilitative Services, voluntary health agencies, and nephrologists are all interested and working toward the same goals — better kidney disease prevention and treatment for people.

These programs and projects promote early detection and treatment, education of the patient and the public, new and exciting discoveries and results in nephromedicine and ever-increasing hope of a cure.



THESE MAKE DIALYSIS POSSIBLE — Every kidney disease patient who is on dialysis has a shunt or surgical fistula which makes possible a connection to the artificial kidney. Two problems with the plastic shunt are clotting and infection. More physicians are turning to the fistula for dialysis patients.

FLORIDA

HEALTH NOTES

VOLUME 66, NO. 11 NOVEMBER 1974

Hamelin Town's in Brunswick,

By famous Hanover city;

The river Weser, deep and wide,

Washes its wall on the southern side;

A pleasanter spot you never spied;

But, when begins my ditty,

Rats! They fought the dogs and killed the cats,

And bit the babies in the cradles,

And ate the cheeses out of the vats.

And licked the soup from the cook's own ladles,

Split open the kegs of salted sprats,

Made nests inside men's Sunday hats,

And even spoiled the women's chats,

By drowning their speaking

With shrieking and squeaking

In fifty different sharps and flats.

The legend of the Pied Piper dates back to thirteenth century Germany. According to the legend, the town of Hamelin, overrun by rats, agreed to pay the magical musician a large sum of money to charm the rats out of town. When the piper was unexpectedly successful, the townspeople refused to pay. The angry piper then turned his charms on the town's children, luring them away to an unknown fate. The excerpts printed here are from Robert Browning's *The Pied Piper Of Hamelin;* illustrations from drawings by Kate Greenaway.

Rats have indirectly killed more people than all the wars in history. The rat flea carried Bubonic plague through 14th century Europe, killing an estimated 25-million people — about one-fourth of the population. As recently as the first quarter of the 20th century, nearly 10-million died of plague in India.

Murine typhus fever, a disease transmitted to man in the feces of rat fleas, has killed uncounted millions. Since the 1500's, typhus has accompanied nearly every war and revolution, often killing far more men than the military exploits. During World War I, the Austrian invasion of Serbia was delayed for six months due to an epidemic of typhus. Serbia lost 150,000 lives to the disease but was spared from invasion. Between 1917 and 1923, an estimated 30-million Russians were struck by typhus; an estimated three-million died.

Adult rats can eat 50 pounds of grain a year. They can easily waste and contaminate 10 times this amount. Although preferring grains, such as corn, they will attack stored fruit, vegetables, flower bulbs, seeds, poultry, and young livestock. They steal eggs and attack the young of wild and domestic birds. They occasionally destroy crops in the field.

In 1945, the estimated economic loss to rats in this country was 200-million dollars; in 1968, it was one-billion dollars; in 1970, two-billion dollars.

Rats are not native to Europe or America. From their Asian homeland, they have followed the littered trails of civilization, attracted by man's garbage and carelessly stored food. Men have devised endless varieties of traps and poisons to kill these rodents, but the simplest methods of control are among the most effective — blocking them out of man-made shelter, and depriving them of man-made food.

It is estimated that every American supports one of these parasites — that is, the populations of rats and humans are about the same. This issue of *Florida Health Notes* is devoted to describing efforts to change this situation, to the reduction and control of the domestic rodent population.

Dreaded and Pursued

No one seems to like rats. Hans Zinsser, in his book, *Rats, Lice, and History*, says:

"It is a curious fact that long before there could have been any knowledge concerning the dangerous character of rodents as carriers of disease, mankind dreaded and pursued these animals . . . In ancient Palestine, the Jews considered all seven mouse varieties (akbar) unclean, and as unsuited for human nourishment as were pigs. The worshippers of Zoroaster hated water rats, and believed that the killing of rats was a service to God. It is also significent that Apollo Smintheus, the god who was supposed to protect against disease, was also spoken of as the killer of mice, and Saint Gertrude was besought by the bishops of the early Catholic Church to protect against plague and mice . . . The year 1498, Sticker tells us, was a severe plague year in Germany, and there were so many rats in Frankfurt that an attendant was stationed for several hours each day on a bridge in the town and directed to pay a pfennig for every rat brought in . . . Heine, according to Sticker speaks of a tax levied on the Jews of Frankfurt in the fifteenth century, which consisted of the annual delivery of five thousand rat tails."

Infinitely Adaptable

Rats are infinitely adaptable. Their behavior adjusts quickly to the demands of new conditions. They can gnaw through wooden doors and walls; through poorly mixed concrete; through cinder blocks, adobe, asbestos, and lead pipes. Their teeth grow four-to-five inches a year and can be kept short only by gnawing. They gnaw books, furniture, leather goods, electrical wiring — sometimes for the sole purpose of shortening their teeth.

Rats are difficult to control through traps and poison. They tend to avoid new objects in their environment, sometimes even new

FLORIDA HEALTH NOTES

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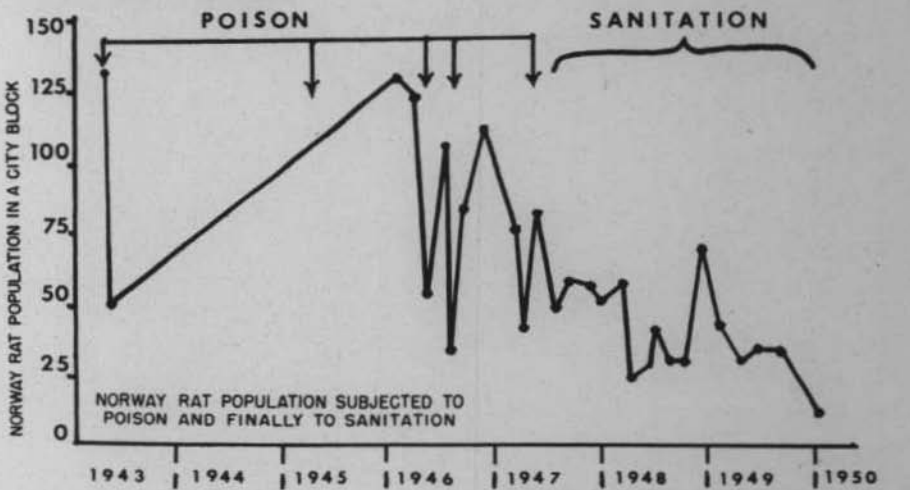
foods. They may only sample a poisoned bait, not eating enough to be killed. When a poisoned food makes them sick, they avoid this kind of bait in the future. When a colony is trapped or poisoned, the most cautious individuals tend to survive, passing this trait on to their offspring. If some individuals are more resistant to a poison, this characteristic may also be passed to offspring, making the poison less effective.

Under favorable conditions, a pair of rats can multiply into several hundred in the course of a year. Control measures, such as traps and poisons, are useful for reducing infestations, but they cannot cope with the reproductive capacity of well-fed and sheltered rats. Despite their reputations for cleverness and adaptability, rats depend on man for charity.

Rats thrive because of conditions people create.
People can remove these conditions.

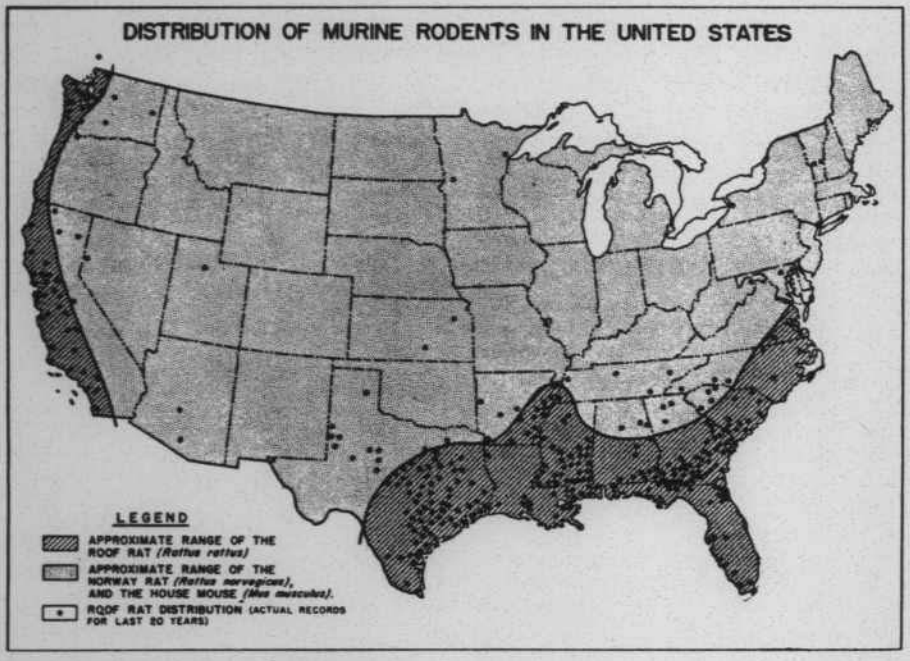
This graph shows what actually happened to the rat population in a city block between the years 1943 and 1950. From 1943 to 1947 the capacity of the block to support rats was not changed. Each time the poisoning stopped, the population came back to about 125 rats. Now look at 1948 and 1949. By an intensive sanitation program in this block, the capacity of the environment was changed. The graph shows that the population level went down and stayed down. Therefore, to change the level of a rodent population, it is necessary to change the capacity of the environment to support rodents. (U.S. Public Health Service)



Murine Rodents

The oldest rodent pest known to Western Civilization is the house mouse. The Latin word *Murinus*, borrowed to name the family of rats, originally applied only to mice. Mice were apparently the first of the rodent pests to migrate from their Asian homeland, through the Mediterranean countries, to Europe. Three species of murine rodents have become so adapted to, and dependent upon man, that they are called domestic rodents — a term meaning they share man's homes. These three include the house mouse, the roof rat, and the Norway rat.

The second domestic rodent known to the West is probably the roof, or black rat. The Greeks made no mention of rats, and the Romans did not distinguish between mice and rats. Roof rats probably first appeared in the West during the Middle Ages, perhaps carried by the crusaders. Once established, they spread quickly. The legend of the Pied Piper dates back to about the year 1284. By Shakespeare's time, days of prayer had been set aside for protection against rats. Rat catchers (mentioned in *Romeo and Juliet*, Act III) were important town officials.



For several centuries the roof rats had their own way in Europe. They are held responsible for millions of plague deaths, and are almost certainly responsible for numerous Typhus epidemics.

Beginning in the 18th century, the roof rat was all but wiped out of Europe by a newcomer, the Norway rat. Roof rats and Norway rats fight each other mercilessly. Only under special conditions do both species live in the same area. For example, in grain elevators, roof rats will live at the top, Norway rats at the bottom. In tropical and semi-tropical climates, the roof rat appears to have some advantage. Both species live on the West Coast and in the Southeastern United States.

The (Norway) rat has spread across the North American Continent from Panama to Alaska, has penetrated to all the less tropical parts of South America, to the South Sea Islands, to New Zealand, and to Australia. In fact, it has conquered the world. Only the extreme cold of Greenland does not seem to attract it. (Hans Zinsser, *Rats, Lice and History)*

To this, we can only add that mice do not share the rat's limitations in the choice of environments. Mice share with man, the distinction of being the most widely distributed mammal.

As with certain diseases, rats have been named after other people's countries. When the roof rat first reached England, it was called the French rat. When the Norway rat reached England, it was at first called the Hanoverian (German) rat. It reached England some years before reaching Norway.

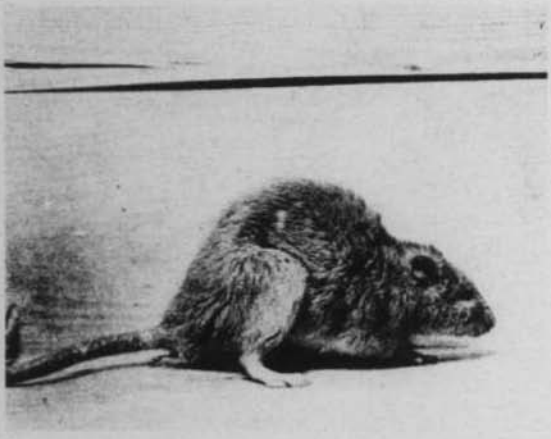
Domestic rodents have two ecological characteristics in common with man: they eat the same foods, and they lack effective natural enemies. Man is the only predator which checks the numbers of rats and mice; and it sometimes seems that man, with his traps and poisons, has had only temporary and limited effects. The size of rodent populations seems most dependent upon availability of food. Infestations of rats are almost always the result of poor sanitation, safe shelters, and unprotected food. When these conditions are corrected the rats starve or migrate.

Rattus norvegicus

Also called Norway rat, brown rat, sewer rat, wharf rat, house rat

Norway rats have adapted so completely to their parasitic relationship with man, that they seem unsuited to any other kind of life. They are seldom found far from man-made sources of food. They live off the land only in wet areas and coastlines, where fish and other foods are washed ashore. When a source of food becomes scarce, they migrate.

They will eat almost everything people will eat, though avoiding spicy foods, and preferring corn and grains. Where high quality food is unavailable, they will thrive on garbage.



The Norway rat has small ears, a heavy body, and a blunt muzzle. Adults are 12 to 18 inches long and weigh 10 to 17 ounces. Color is usually reddish to grayish brown, although black ones have been found. The white rat used in laboratories is an albino Norway rat.

They have been known to nibble on sleeping infants and paralyzed adults, especially when food particles are left in the bed, or when a person is not washed after eating. In general, they avoid contact with humans, except when food is very scarce. They will not usually attack, except when cornered.

Norway rats are burrowing animals. Whenever possible, they will live at, or below ground level. They prefer not to live in houses, to enter them only in search of food. They will live in weeds or high grass only when food is available nearby. If food is plentiful, they will fill the best kept lawn with burrows.

Control of Norways is largely a matter of sanitation. They prefer the easy life, moving on when food is covered, garbage properly disposed of, and buildings are ratproofed.

Rattus rattus

Also called Roof rat, black rat, gray rat, fruit rat

Southeastern states, including Florida, have another rat pest to contend with. In these states the roof rat is able to coexist with the Norway rat. The roof rat is more difficult to control, because it is able and willing to live off the land.

Whenever possible, this rat will live on human handouts, but it is able to survive on nuts, acorns, and berries. It occasionally nests in trees, much the same as squirrels. The roof rat can infest the best neighborhoods, living on pet foods and bird seed.

Roof rats are climbers and jumpers. They can cross city streets by walking telephone wires. They can climb the vertical walls of most buildings. Vine covered walls make perfect runways. With a running start, they can clear a three-foot vertical barrier. When jumping from a height, they can bridge eight feet horizontally. Roof rats live in trees, attics, false ceilings, walls, and other enclosed spaces. Whenever possible, they live above ground.

The roof rat has larger ears, a longer tail, and a pointed nose. Length (including tail) ranges from 13 to 18 inches, and weight varies from four to 12 ounces. Several color combinations exist, ranging from slate-colored on both back and belly, to tawny-backed with white or lemon colored belly.

Control of roof rats begins with effective rat-proofing of buildings, food supplies, garbage and garbage dumps. Sanitary landfills must be covered every day before dark. But this will not end the problem. Before turning to wild sources of food, roof rats will turn to fruit and citrus groves, and to other crops. When outbreaks of these rodents occur, trapping and poisoning can quickly reduce the population.

The house mouse can be distinguished from a young rat by its delicate features, including a small head, small feet, and slender tail. Field mice and cotton rats are often mistaken for domestic rodents. Domestic rodents are seldom seen in the daytime.

Mus musculus

The House Mouse

Native American mice, such as the deer mouse and the white footed mouse, are often confused with the house mouse. Wild mice are sometimes found in isolated houses and barns, adding to the confusion.

Mice share many of the habits of rats. They differ, however, in the way they feed. Mice take only a few bites from any single food source; they nibble and move on. Rats are steady eaters. This difference makes mice much more difficult to poison, since they are less likely to ingest a lethal dose.

Sigmondon hispidus

The Cotton Rat

The cotton rat should not be confused with Norway and roof rats. Cotton rats are native to America and are controlled by natural predators, such as owls, hawks, and snakes. They are no more of a problem than other wild animals.

Most rats and mice are active at night, hidden by day, and seldom seen far from man-made structures. When rats are seen in the daytime, especially in fields and woods, they are probably cotton rats. Because they are active in the daytime, they are probably seen more often than domestic rodents.

Rats and Public Health

Most Floridians have never seen a case of Typhus or plague. Rat-bite fever sounds rather quaint. After all, aren't these diseases old-fashioned, obsolete, wiped out?

For Floridians, the answer is yes and no. Yes, it has been a long time since the last epidemic of plague or typhus. No, these killers have not been wiped out.

The last outbreak of plague in Florida occurred in the 1920's; The last outbreak of typhus occurred in the 1940's. For these diseases to spread in epidemic proportions, several factors must be present, all at once. There must be a large number of susceptible people, a large number of intermediate carriers, and the disease itself.

People are not immune to plague and typhus, and the diseases still exist. Plague, for example, is carried by some wild rodents in the Western United States. In this case the goal of public health is to control the number of carriers. As long as the numbers are small, there is little chance of an epidemic.

Vomiting, Nausea, and Diarrhea

Rats spread a common form of food poisoning, Salmonellosis, by walking on food with contaminated feet, or by littering food with contaminated feces. Salmonellosis is characterized by vomiting, nausea, and diarrhea; it is often referred to as the "G.I.'s," the virus, or "24-hour flu." It is actually a bacterial food infection.

Rats can play a part in carrying trichinosis, a disease usually associated only with eating undercooked pork. Hogs occasionally eat poisoned rats or uncooked garbage contaminated by rat feces. If the rats have trichinosis, the hogs will be infected.

Rats, and the lice and fleas they carry, are associated with the spread of leptospirosis, rickettsialpox, Tamiami virus, plague, murine typhus, trichinosis, and rat-bite fever. They are not known to carry rabies — probably because they are seldom bitten, except by animals large enough to kill them instantly. In addition to spreading human diseases, they can spoil efforts to quarantine livestock, by traveling from one farm to another. This can aid in the spread of extremely costly livestock epidemics.

Into the street the Piper stept,
Smiling first a little smile,
As if he knew what magic slept
In his quiet pipe the while;
Then, like a musical adept,

To blow the pipe his lips he wrinkled,
And green and blue his sharp eyes twinkled,
Like a candle-flame where salt is sprinkled;

And ere three shrill notes the pipe uttered,
You heard as if an army muttered;

And the muttering grew to a grumbling;
And the grumbling grew to a mighty rumbling;
And out of the houses the rats came tumbling.

Great rats, small rats, lean rats, brawny rats,
Brown rats, black rats, grey rats, tawny rats,
Grave old plodders, gay young friskers,
Fathers, mothers, uncles, cousins,
Cocking tails and pricking whiskers,
Families by tens and dozens,
Brothers, sisters, husbands, wives –
Followed the Piper for their lives.

From street to street he piped advancing,
And step for step they followed dancing,

Until they came to the river Weser
Wherin all plunged and perished!
– Save one who, stout as Julius Caeser,
Swam across and lived to carry
(As he, the manuscript he cherished)
To Rat-land home his commentary:

Which was, "At the first shrill notes of the pipe,
"I heard a sound as of scraping tripe,
"And putting apples, wondrous ripe,
"Into a cider-press's gripe:

"And a moving away of pickle-tub boards,
"And a leaving ajar of conserve-cupboards,
"And a drawing the corks of train-oil flasks,
"And a breaking of the hoops of butter-casks:

"And it seemed as if a voice
"(Sweeter by far than by harp or by psaltery
"Is breathed) called out, 'Oh rats, rejoice!
"'The world is grown to one vast drysaltery!

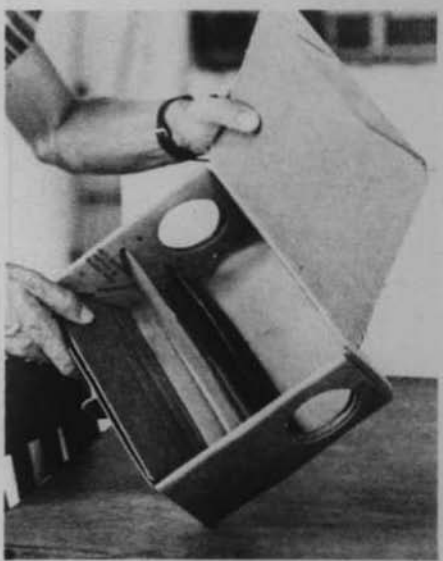
"'So munch on, crunch on, take your nuncheon,
"'Breakfast, supper, dinner, luncheon!'
"And just as a bulky sugar-puncheon,
"All ready staved, like a great sun shone

"Glorious scarce an inch before me!'
"Just as methought it said, 'Come, bore me!'
"– I found the Weser rolling o'er me."

Modern Pied Pipers

The legendary Pied Piper, with the aid of his magical music, promised the rats a land of eternal free lunches. In the upper photograph, a Jacksonville restaurant offers the real thing. The wall in the background shields the public from the unpleasant sight, but does not keep out the rats.

Another Pied Piper, the bait box, holds corn meal treated with anticoagulant poison. This poison is relatively safe, except when eaten in large quantities over a period of several days. The corn meal bait is not very attractive to cats and dogs;the poison is not very harmful to chickens and other poultry. Nevertheless, the box aids in keeping birds, pets, and children away from the bait. Similar boxes can be made from wood, old shoeboxes, or corrugated cardboard containers. The bait is available to the public, and is distributed free by some of Florida's county health departments.



Bait boxes and traps should be placed along walls, behind cupboards, wherever rats are known to travel. Look for holes, rub marks, droppings, or shredded debris. Bait boxes should be checked and refilled daily for several weeks. Bait for traps should be kept fresh. Rats learn quickly about traps. If you use them, use enough to make a dent in the population before they learn to avoid them. Once a colony has been subjected to traps, the traps are useless until a new generation is born.

Role of Health Departments

Over the years the role of public health departments has varied a great deal in the area of rat contol. During epidemics and threats of epidemics, their role has been quite active — for example, rat-proofing buildings for the cost of materials. Gradually it has been recognized that rat control is ultimately the responsibility of individual property owners. Rats do not live for long in homes where they are not fed. They do not live in vacant houses, unless food has been left in these houses.

The Health Departments have taken on the task of enforcing public sanitation. Restaurants are inspected for practices that attract rodents. Unsanitary garbage dumping is prohibited, and complaints of violations are investigated. Shipyards and ports are inspected and baited to prevent the entrance of foreign rats, which might carry new diseases.

Free Bait

Health departments no longer enter private homes, nor do the work of rat-proofing, which could be done by the owners. However, several of Florida's county health departments offer bait free of charge. When used properly, this rodenticide can quickly reduce infestations. Few serious rat problems remain with a combination of rat-proofing, sanitation, and periodic baiting.

Our primary defense against plague, Typhus, and several other infectious diseases, lies in controlling the number of domestic rodents. When food is abundant, natural predators, such as cats, owls, snakes and hawks have little effect on the rat population. Man is the only effective predator for the domestic rodent. When food is scarce, the natural predators become more effective. The answer to control must ultimately be found in the decision of each individual to stop feeding rats and mice.

THE PLAGUE IN PENSACOLA AND ITS EXTERMINATION

The Dreaded "Bubonic Plague"
Has Appeared In Pensacola

THE FEDERAL, STATE AND CITY HEALTH AUTHORITIES ARE FIGHTING THIS DISEASE FOR YOUR BENEFIT

To Insure Success, Your Co-operation Is Imperative

This Plague is primarily a disease of the Rat.
The infection is transmitted by the Flea.
The Flea living on the infected Rat becomes infected
If the infected Flea bites a human being, that person becomes infected with the Plague.
It is incumbent upon all to wage a relentless war on the Rat.

YOUR DUTY:

Trap Rats!
Obey the Sanitary Laws of the City!
Have your Premises Inspected!

CITIZENS' HEALTH COMMITTEE

Robert P. Stout	H. H. D'Alemberto	R. P. Reese
Frank Riera	J. H. Christie	J. A. White
E. D. Beggs	H. T. Hanson	L. L. Fabisinski
J. H. Crosa	B. L. Gundersheimer	O. J. Sommes

The most nearly permanent control can be achieved by alterations of the physical environments of rats and mice. Although it is quite possible for man to use predation, this factor is generally difficult to maintain over a long period. The high cost of labor involved and the problem of periodically repeating poisoning campaigns are a good demonstration of why a program based on predation may be ineffective.

Alteration of the rodents' environment usually improves man's own environment and fits in with desirable changes in land use. The removal of unsightly piles of junk, lumber, and rundown buildings improves the appearance and living standards of an area. At the same time it destroys much rodent harborage.

Placing garbage in tight-fitting rat-proof containers not only destroys rodent food sources, but also helps reduce flies. Once the environment has been altered, the effects of predation and competition are intensified. The rodents' enemies find it easier to run them down and kill them. Rats and mice compete violently for the remaining food and harborage. As a result, the rodent population goes down. For the most nearly permanent rodent control, man should SO CHANGE THE PHYSICAL ENVIRONMENT THAT THE LEVEL OF PREDATION AND COMPETITION IS INCREASED. This in effect, lowers the capacity of the environment to support rats and mice.
(U.S. Public Health Service)

Health department handbills from the 1920's.

Signs of Rodent Infestation

Live rats are seldom seen, unless surprised in the night. When a rat is seen in the daytime, especially one that does not run away, it is probably sick or poisoned. A Jacksonville schoolboy was bitten when he picked up a rat. The rat turned out to be dying from eating poisoned bait.

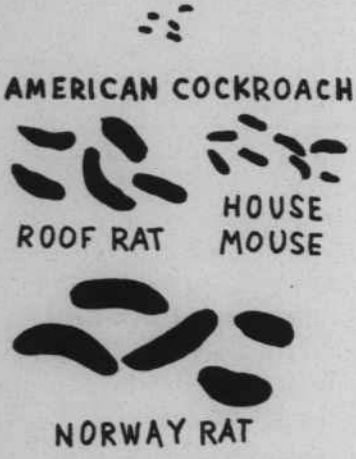
Rat and mouse feces will usually be found in areas of heavy infestation. If the rats are still active in the area, the droppings will be dark and soft. Older droppings will be dry, hard and crumbly.

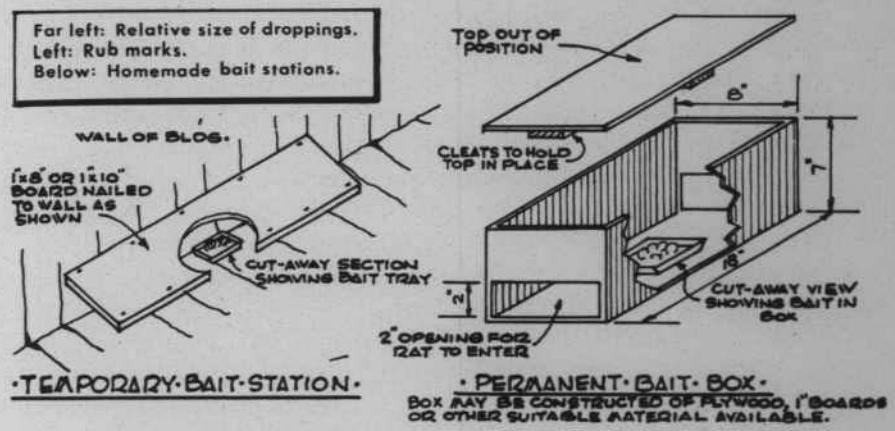
Rats leave trails where they pass frequently. In dirt and in dusty places they leave paths. Along walls and ceiling joints they leave dirty, oily, "rub marks."

Where rats are common, evidence of gnawing will probably be found. Holes in walls, marks on furniture legs, shredded debris, holes in food packages, are all signs to watch for. The freshness of gnaw marks can usually be determined by inspection; fresh marks are lighter in color and have sharp, jagged edges.

When dead rats are found in any numbers, it is probably the result of disease or a poisoning campaign. In either case, dead rats should not be handled. Fresh corpses may be swarming with lice and fleas, which will literally jump at the first opportunity for a new host.

Occasionally, when a house is very quiet, rats may be heard. The sounds of running, gnawing, and scratching may be heard from between double walls, floors, in attics or false roofs.





Controlling Rats With Poisons

Since about 1945, a group of safe and effective rodenticides (rat poisons) has been available. Trade names for these poisons include — Warfarin, Pival, Pivalin, Diphacin, Fumarin, P.M.P., and Prolin. These are called anticoagulants. In small doses, anticoagulants are given to certain heart patients to prevent dangerous clots from forming in the blood stream; in larger doses, over a period of time, they can result in death from internal bleeding.

Rat baits containing anticoagulants are considered relatively safe because corn meal bait is not very attractive to cats and dogs; because large amounts (in proportion to weight) must be eaten before they are dangerous; they must be consumed over a period of several days; and because an antidote, vitamin K, is readily available.

Anticoagulant baits, properly prepared, do not seem to trigger an avoidance reaction in rats (bait-shyness). Also, rats may die far from the source of bait, so that other rats are not "warned off." In recent years, a few cities have reported some resistance, or immunity, to one anticoagulant chemical. Resistance has not appeared in Florida, and there are several chemicals now on the market.

Rat bait should always be placed where there are signs of rodent activity. These places include runways, where rub marks are present; feeding areas and around holes in walls. These places will usually be found along walls, behind cabinets, in false ceilings, attics — places that offer safety, or are hidden from observation.

When rat bait is used, it should be heavily used. It should be put in as many places as possible. The object is to get as many rats as possible before any bait avoidance is encountered. If the problem includes mice, there is an added advantage to setting a large number of bait stations. Mice are nibblers; they seldom eat much from one source of food. For the poison to be effective, it must be present in most of what they eat.

Bait stations must be tended and refilled every day for several weeks. Rats may avoid any new food for several days, so it may take some time for activity to be noticed. When the bait is taken regularly, rats should begin dying within a week.

Anticoagulant poisons are usually mixed with corn meal. Where food is abundant, the bait may be made more attractive by adding peanut oil and sugar. Rats have been known to accept this combination even in grain mills where unpoisoned food was everywhere.

Trapping

Traps are generally less effective than poisons, but may be used for several reasons: Poisons may be undesirable for safety reasons; trapped rats are easier to find and dispose of; a combination of traps and poison may be more effective than either by itself.

Before using traps, it may be wise to plan a special trick for the rats. Rats avoid any new object in their environment, including traps. But, if objects are added, moved, and changed *on a regular basis,* they get used to change. Before placing traps put objects, including traps that are not set, in their runways. Several days later, when baited and activated traps are set, the rats will be less likely to avoid them.

Baits for rat traps can include almost anything edible. Bacon is high on the preferred list. Baits which spoil quickly should be replaced frequently.

BAITING THE WATERFRONT — A county health department sanitarian places poisoned bait along the waterfront where ships from foreign countries dock. In the past, rats have been responsible for spreading epidemics from one country to another. Free poisoned bait is distributed by several Florida county health departments. Private individuals are now held responsible for rat-proofing their own premises, baiting when necessary, and sanitation.

Sanitation

The longest lasting and most effective methods of rodent control involve depriving rats and mice of food and shelter. Government agencies are responsible for maintaining sanitary disposal of garbage in public dumps. Sanitary landfills are covered every evening after dumping is finished. County health departments can respond to complaints concerning business establishments that mainatin unsanitary premises, such as restaurants that fail to keep their garbage covered. Cities have ordinances forbidding landowners from maintaining private dumps under unsanitary conditions, and from maintaining conditions that feed and harbor rodents and other pests.

Where whole neighborhoods are plagued with unsanitary conditions, an organized clean-up may be called for. Civic improvement organizations, block clubs, or Scouts may be called upon to sponsor clean-ups. Schools may help by giving children check lists of conditions which they can look for and aid in improving.

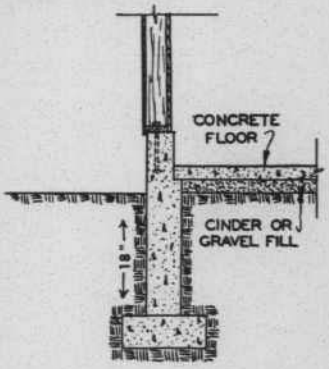
Ratproofing

Shelter and access to food can be eliminated for rodents. When new buildings are constructed, rats can be "built out." Since openings as small as one-half inch will admit young rats, openings in ground floor windows, sidewalk gratings, basement vents, utility pipe openings, and foundation walls need ratproofing. Where roof rats are found, upper floors, wires and vertical pipe openings must be ratproofed.

Metal cuffs and plates can be placed on wooden doors on side or back entrances to buildings to prevent rats from gnawing under or around doors. Door jambs can be flashed with sheet metal. Because open doors provide ready entry, both screened and wooden doors to food-handling and service establishments should be tightly fitted and equipped with self-closing devices.

Vents and windows must be screened with one quarter inch hardware cloth, preferably in a sheet metal frame. Fly screening can also be incorporated into the same frame to keep out insects. Rodents frequently set up housekeeping in air spaces beneath Florida homes, and the vents to these air spaces should be covered with quarter inch hardware cloth. Openings around pipes or conduits, which rats may use as entranceways to buildings, should be filled with concrete, hot poured coal-tar pitch, or closed with metal guards or steel wool.

Left — Norway rat burrows near the foundation of a house. Right — A rat proof foundation. Rats burrowing down along the concrete barrier will stop when they come to the lip at the bottom.



Four Steps to Domestic Rodent Control

1. Deprive them of food.
   Most rats will move to another location when their food supply is reduced. Those which remain will have to work harder. Hungry rats take more chances; they are easier targets for predators.
2. Deprive them of shelter.
   Ratproofing homes, barns, and other buildings not only keeps the rodents out, but also deprives them of your food.
3. Poison them.
   This should be the third priority in any program. The effects of poison are temporary. If food and shelter are available, rats will return. Poisoning should be done in systematic combination with other control measures. Sometimes it is best to start a poison campaign before ratproofing. This is to prevent rats from migrating when their food supply is cut off. People often complain that abandoned houses breed rats. This is not true, unless food is left in the houses. What usually happens is that rats move out of the empty house and into neighboring homes. In cases where houses are to become vacant, rat poisoning should be done before the people move out.
4. Trap them.
   Trapping is most often used as a final clean-up measure, or in combination with poison campaigns. Rats multiply so fast that it is possible to trap several rats a week in an area, without reducing the population.

WITH THE KNOWLEDGE AND WEAPONS NOW AT OUR DISPOSAL HOME OWNERS, BUSINESS ESTABLISHMENTS, CITIES AND TOWNS CAN DETERMINE WITHIN CERTAIN LIMITS HOW MANY RODENTS THEY WISH TO FEED AND HARBOR, EACH ONE OF WHICH IS A POTENTIAL HAZARD TO HEALTH.

You should have heard the Hamelin people

Ringing the bells till they rocked the steeple;

"Go," cried the Mayor, "And get long poles,

"Poke out the nests and block up the holes!

"Consult with carpenters and builders,

"And leave in our town not even a trace

"Of the rats!"

— when suddenly, up the face

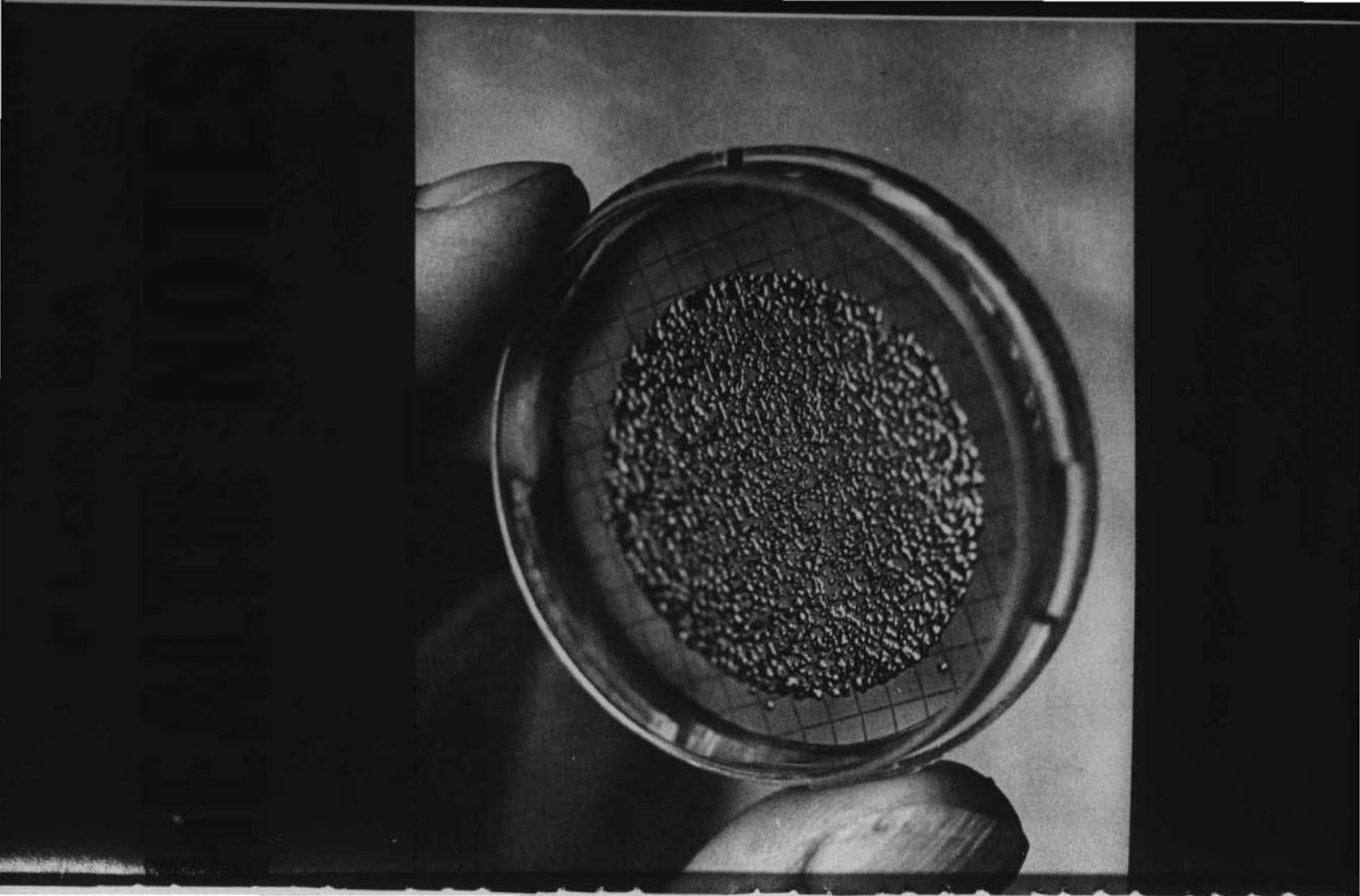
Of the Piper perked in the market-place,

With a, "First, if you please, my thousand guilders!"

ONE GOOD THING TO SAY ABOUT RODENTS

The Division of Health receives several calls a day concerning rodent bites and rabies. Since 1957, more than 20,000 rodents (including rats, squirrels, chipmunks, mice and rabbits) have been examined for rabies. NO FLORIDA RODENTS HAVE BEEN FOUND TO HAVE RABIES DURING THIS PERIOD.

Unfortunately, rodent bites often transmit other diseases, and often become seriously infected. They should be treated by a physician. Victims of rodent bites can, however, spare themselves the fear of rabies. There are no confirmed cases of humans acquiring rabies as a result of rodent bites.



A Sanitary Microbiologist pours a water sample through a filter that traps bacteria. The *front cover* shows numerous bacteria colonies growing on the filter after it has been incubated. To the trained eye, a few colonies stand out as coliform bacteria. Coliform bacteria are generally harmless in themselves, but since they grow in the intestines of warm blooded animals, their presence indicates the water supply is contaminated. Fecal contamination is not always dangerous, but it can and has spread infectious disease from a single person to a whole community in a matter of days.

Every day millions of Floridians drink hundreds of thousands of gallons of water, consume tons of food, work in thousands of offices and factories. Some of these people will be happy with their lives, and some not. Some will praise and some will complain. We expect this. It has been going on as long as anyone can remember.

However, we do not expect these people to catch diseases from their food and water, or to be poisoned at work. And this is something very new in the world.

Only recently in the history of civilization have we understood how infectious diseases are spread; and even more recent is our understanding of the hidden, long-term effects of certain chemicals.

Our recent ancestors accepted as inevitable a number of diseases which are now quite rare. Tuberculosis was once a fashionable disease — artists and would-be artists embraced consumption as a badge of honor. Diphtheria, rheumatic fever and polio were the scourge of childhood; hepatitis, yellow fever and typhus still haunt the memories of the living. Today, however, death from infectious disease is unusual, especially in the years between infancy and old age.

We have always associated certain hazards with earning a living. In fact, sportsmen, soldiers, daredevils and others are admired and paid for risking their lives. The hazards involved in these occupations are obvious. Part of the job qualification is knowledge of the dangers and skill in avoiding them. Recently, however, public attention has been directed toward dangers that are not obvious, which cannot be avoided by individual skill. These dangers include poisons and cancer-causing agents — some of which are odorless and invisible — which may not show their effects for twenty or thirty years.

Infectious diseases and occupational hazards may not seem related — in fact, they do not share the same bureau at the Division of Health — but they share an important similarity. The similarity is that they can have invisible causes. Both germs and dangerous chemicals often give no warning of their presence.

The human senses are simply not reliable guides to the safety of the air, food and water we consume. "Sulfur water," for example, may be foul-smelling, but perfectly safe. At the same time, clean and fresh tasting shallow well water might be contaminated by a nearby septic tank.

Improved Eyes And Ears

Our advantage over our ancestors is that we can now see these hazards. We have improved eyes and ears — the instruments of the laboratory. Every day in Florida, thousands of specimens and samples flow into the public health laboratories for examination. They come for many reasons:

*To aid a physician in making a diagnosis;

*To determine the safety of water, milk, and food products;

*To screen persons with infectious diseases, for the purpose of controlling epidemics;

*To screen persons with non-infectious diseases, for the dual purposes of referring them for treatment and determining causes.

Florida's public health laboratories consist of the Central Laboratory in Jacksonville and six regional laboratories located in Miami, Orlando, Pensacola, Tallahassee, Tampa, and West Palm Beach. Much of their work is routine screening and surveillance; some of it supports research into the causes of chronic diseases; occasionally it involves a medical emergency. The laboratories routinely perform hundreds of different tests; many more are available to meet unusual situations.

Among the tests required by law are: blood alcohol tests under the Implied Consent Law; bedding analyses; and surveillance of possible radiation hazards. Since private clinical laboratories do the great majority of work for hospitals and physicians, it is important that their standards be maintained. The Division of Health Clinical Laboratory Improvement Program is designed to help private laboratories improve and maintain their quality.

Just listing the services performed by the laboratories would fill this issue of *Florida Health Notes.* Instead, we will sample a few of the programs, describe a few of the tests, and attempt to show the complexity of the operation.

FLORIDA HEALTH NOTES

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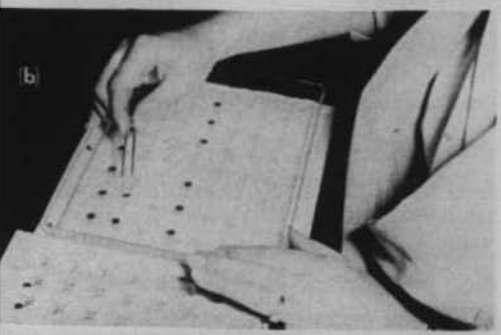
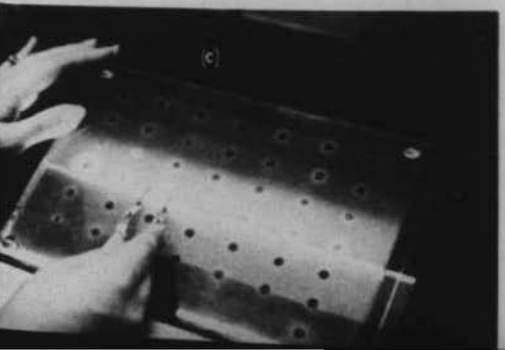
PKU

Every year a small number of children are born without the ability to metabolise phenylalanine (pronounced FEN-il-AL-ah-neen), one of the amino acids which make up protein. The disease, phenylketonuria (FEN-il-KEY-toe-NU-ree-ah), is hereditary and leads to progressive and severe mental retardation. The damage can be arrested by a diet low in the unusable protein, but the diet must be begun early in infancy.

State law requires that every newborn be tested for PKU before leaving the hospital. A drop of blood is collected on a paper blotter. This is sent to the laboratory for determination of the amount of phenylalanine. The blood specimen is examined with a special strain of bacteria which is sensitive to phenylalanine. After a period of incubation, the size of the bacteria colonies are compared to a standardized control colony. Since these bacteria grow faster in the presence of phenylalanine, an oversize colony indicates an excess of this chemical in the blood — a sign of the disease.





In the test for PKU, spots of blood are punched out (a) and placed on a media containing a special strain of bacteria which are sensitive to phenylalanine. (b) After a period of incubation, the bacteria will form a ring-shaped zone around the spot of blood. This zone is then compared to the zones of the known standards (c). Since the bacteria grow faster in the presence of phenylalanine, a larger zone indicates an excess of this chemical in the blood — a sign of the disease.

Sanitary Microbiology

Two years ago typhoid fever broke out in a Dade County migrant farm workers' camp. Thousands of fecal specimens were screened in the Miami Regional Laboratory, and more than 200 cases were identified. Some of these cases did not involve the serious symptoms that would bring a person to a hospital. Without laboratory screening, these cases might have gone unnoticed — only to start another epidemic some other time.

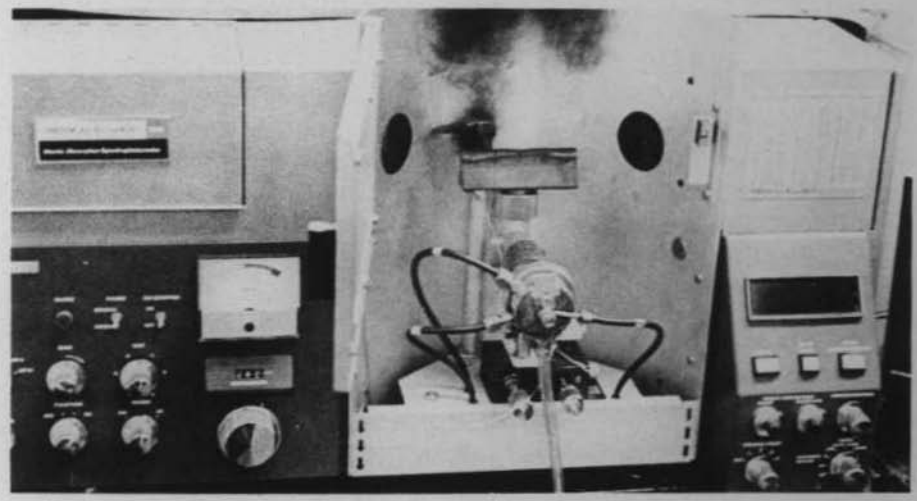
Typhoid is sometimes a water-borne disease. In the migrant camp, a single source of the disease was identified — a contaminated water supply at the campsite. A generation ago such outbreaks were common, and a family's only defense was to boil its drinking water. Today, such outbreaks are rare for several reasons: Most water supplies are chlorinated, and typhoid bacteria are killed by chlorine; most private water supplies are constructed to avoid contamination from privies, septic tanks, and surface drainage; and even a contaminated water supply will not spread typhoid unless someone who carries the disease lives in the area.

The Sanitary Microbiology Laboratory maintains surveillance over Florida's water supplies to insure that they are free of contamination. Water samples are passed through a filter that traps bacteria. The filter papers are placed in a nutrient solution and incubated for 24 hours. Ordinarily, there is no need to look for pathogenic (disease-producing) bacteria. Instead, the microbiologist looks for easily identifiable coliform bacteria. Coliforms are harmless bacteria found in the intestines of warm-blooded animals. If coliforms are found in a water supply, it means the water is contaminated with fecal matter — an indication that the water could be carrying harmful bacteria which cause diseases such as typhoid.

The primary goal is prevention. It is better to clean up a water supply than to wait for an outbreak that might involve hundreds of people.

Milk is also monitored. Samples of milk and milk products arrive at the laboratory on a regular basis. These samples are checked for bacteria count and for the addition of antibiotics or other growth inhibitor substances. The bacteria count is a general indicator of the sanitary conditions of the dairy. An exceptionally low count may indicate that something has been added to kill bacteria — possibly to cover up poor sanitation.

Oysters, and the water they grow in, are tested for evidence of contamination by bacterial or chemical pollutants. Recently, the Red Tide has caused concern that shellfish might contain some of the poisons produced by the red tide organism. Red tide does not cause an infectious disease in humans, but, like botulism, it produces a potent toxin. The Division of Health is one of the few organizations in the United States capable of checking for toxins in shellfish. By this screening, both the public and the shellfish industry are protected from the consequences of shellfish poisoning.



The Atomic Absorption Spectrophotometer detects metals, such as lead and mercury, in biological specimens and in air samples.

Occupational Health

Occupational diseases are not new to man; they are not solely products of the 20th century. "Black lung," "grinder's rot," and "potter's phthisis" are ancient terms for diseases associated with dust. Perhaps the most famous victim of occupational disease is the fictional "Mad Hatter" from *Alice's Adventures In Wonderland.* Hatmakers frequently went insane from exposure to mercury vapors used in processing felt.

Some occupational hazards are a source of admiration and financial reward in our society. Our television and movies concentrate on the detective, the outdoorsman, and the daredevil. Football draws larger crowds than baseball. It may seem silly, after watching

people face constant danger, to complain about dust or bad smells in a factory — even if they indicate hazardous pollution.

But few occupational hazards are glamorous and few are necessary. People are not admired for dying of occupational diseases. Until recently, they had little chance of finding out what made them ill.

Employers do not wish to subject their employees to unnecessary risks. Most of them have made changes quickly after discovering a health hazard. Since 1946, the State Board of Health (now the Division of Health) has provided technical assistance to Florida industries that wished to eliminate health and safety hazards. Services provided to industry have included:

*metering noise levels to help prevent damage to workers' hearing.
*sampling air to detect poisonous gases, dusts, and metal fumes.
*collecting blood and urine samples to determine the level of toxic elements.
*inspecting sanitary facilities, including food services.
*providing guidelines for first aid facilities.

These services are still provided on a voluntary basis.

In 1970 the Federal Government passed the Occupational Safety and Health Act. This law provides for an administration to formulate rules and enforce them. It also preempts state safety and health regulations which are covered under the federal act when an individual state does not have an approved plan. Florida has submitted a state occupational safety and health plan for consideration by the Federal Department of Labor. Action on the state plan hinges on the passage of enabling legislation by the state. This would provide legal authority for state agencies to carry out the provisions of the Occupational Safety and Health Act.

Since 1971, when the federal law took effect, the Occupational Health laboratory at the Division of Health has continued to provide technical services and consultation to industries that wish to comply with the federal regulations, but do not have the technical facilities or engineering staff to cope with the problems. For example, few small industries could afford the Atomic Absorption Spectrophotometer used to analyze biological and air samples for toxic metals, such as mercury and lead.

Toxicology

"We had a case recently involving methanol. A boy and girl from the university drank some moonshine at a party. The girl died the same night, and we found wood alcohol in her blood. We also found it in the boy's blood, but he said he felt fine, and refused treatment.

"Methanol is an unpredictable substance. It doesn't seem to intoxicate the way grain alcohol does. Sometimes it acts as a slow poison, and sometimes a person seems unaffected. In this case, the boy didn't show any symptoms for two days. Then, his dormitory mates found him dead in the shower.

"In general, we get the cases in which a person is found unconscious, and drugs or poisons are suspected. Some people think we have a magical machine for finding the identity of the chemical — just pour in a blood sample, and out comes the answer. Things aren't that simple yet. In fact, unless we have some clues to narrow our search, we could spend a week without finding any answers. By then, of course, a patient could be dead.

"We always ask emergency personnel to search the clothing and the surroundings of unconscious persons. They might find medications, alcoholic beverage bottles, evidence of illicit drugs, or pesticide containers. With children, the list includes things that people don't even think about — aspirin, cold tablets, lighter fluid, kerosene, furniture polish. We want to know what was available to a person, and whether anything was open or out of place.

"If the evidence points to a specific substance, we can do a test to confirm it. Otherwise, we have to narrow the search some other way. We need to know the patient's symptoms. This knowledge can narrow our search considerably.

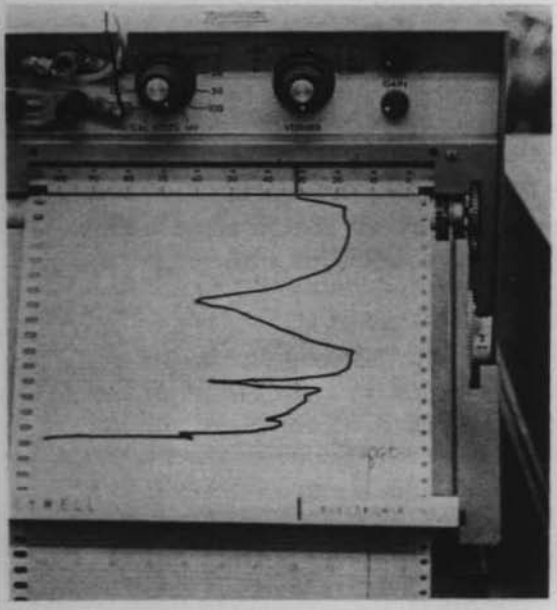
"Time is the most important thing. With nothing else to go on, we look for alcohol first. It's a fast test, and it catches most of the cases. We can discriminate the different kinds of alcohols and volatile substances. A couple of times we have found acetone in the blood. The person may appear to be drunk — his breath may even smell like he's been drinking something — but acetone in the blood is a symptom of diabetes. If the person is not treated quickly, he may die.

"People don't seem to know how dangerous alcohol can be. When you combine alcohol with other drugs, even prescription medications, you can get a real killer. People will take a couple of tranquilizers, then go to a party where they have half-a-dozen drinks. They never know what hit them. Even if they are lucky enough to recover, they don't realize that it was the combination that made them sick.

"Most people know that powerful medicines are poisonous in excessive doses, but they don't know that a few drinks can make an ordinary prescription medicine 10 times as toxic as it ordinarily is.

"When clues are scarce, we consider the way a person is dressed. With a shabbily dressed person, we may test first for narcotics and alcohol. With a well dressed person, we may first suspect tranquilizers, barbiturates and alcohol. When you're searching for an unknown, you have to play the odds.

"We ask for both blood and urine specimens, because different tests require a specific specimen. Generally, we don't find narcotics in the blood, unless the person died immediately after the injection.



The gas chromatograph threatens to replace the microscope as the most common instrument in the medical laboratory. The trained technician can quickly confirm the presence of many chemicals in blood and urine specimens. The Division of Health uses these machines in the Toxicology Laboratory, in anerobic bacteriology, and in drug screening as a service to the many drug treatment programs in the state.

"A few minutes on the phone with the examining physician can save us hours of unnecessary work, and maybe someone's life."

Pesticide poisoning can present a real dilemma. There are two basic varieties of pesticides, differing in their method of action. If a physician does not know which kind his patient has taken, and treats for the wrong one, he will probably lose his patient. The Toxicology Laboratory can determine the type of poison, but it is helpful to have some extra evidence, such as a container found at the scene of the accident.

The Uncontrolled Epidemics

Gonorrhea and syphilis, the two major venereal diseases, account for over half of the communicable diseases reported to the Division of Health. Along with influenza they constitute continuing serious epidemic diseases in Florida. In keeping with the extent of the problem, the laboratory plays a major role by performing blood tests for syphilis and bacteriological examinations for gonorrhea.

The organisms responsible for gonorrhea and syphilis are relatively sophisticated parasites. They have arrived at a point in their evolution in which they neither kill quickly nor are they quickly killed by their host. They produce no effective immunity and have a long, chronic course without medical treatment.

One of the great problems in the control of these diseases is that early symptoms often go unnoticed, or are mistaken for other infections. Females usually show no symptoms of gonorrhea, and there is mounting evidence that many males are also symptomless carriers.

Untreated syphilis can lie dormant for many years before surfacing in the form of heart disease, insanity, blindness, paralysis, or a number of very serious disabilities. Untreated gonorrhea can lead to sterility, severe arthritis and infection of the heart valves. Syphilis can be transmitted to unborn children, gonorrhea to the eyes of children at the time of birth.

Syphilis Serology

Florida law requires blood tests for syphilis for men and women before marriage, and for expectant mothers. Blood samples are sent to a Division of Health laboratory, or to any of the private clinical laboratories which are approved by the Division to perform blood tests for syphilis.

The blood samples are centrifuged to separate the serum from the red cells. In one of the common tests used, a drop of serum is placed on a slide and a drop of the test antigen is added. The slide is examined under a microscope for evidence of agglutination (clumping). This will occur if the blood serum contains antibodies for the syphilis organism.

As with many other laboratory tests, a reactive serologic test for syphilis is not always indicative of the disease. Other diseases can cause a false positive reaction. For a definite diagnosis of syphilis, a positive laboratory test should be combined with other information:

a history of exposure, identification of contacts, and clinical symptoms. Another, more specific test (the FTA-ABS), can supplement the screening test where additional confirmation is desired. Or, if the disease is in its early stages, it may be possible, with the aid of the microscope, to identify the organism in material taken from skin lesions.

The positive serological test may also be used to follow the progress of treatment. After treatment, the patient's serum will contain less and less antibody, until it may no longer be reactive.

The Search For the Gonococcus

In the television game, **To Tell The Truth**, a wrong answer can be just as important as a right answer. In the laboratory a negative test is every bit as important as a positive one. Identifying bacteria is an extremely costly and time-consuming process, unless the problem can be reduced to a yes-no answer concerning a specific organism. Under ideal circumstances, the symptoms of a disease point to the cause, and the laboratory is called upon to confirm the identity of the causative agent.

In Hollywood movies, the microbe hunter simply examines a slide under a microscope. With the ease and sureness of identifying an old friend, he announces, "It's definitely such-and-such". Although this is sometimes possible, there are a number of "look-alike" bacteria which are difficult to tell apart. This is especially true in a female with gonorrhea.

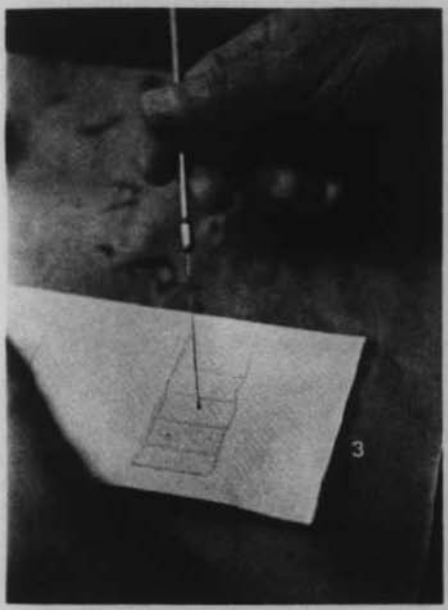
In specimens taken from female patients, there may be too few organisms for reliable identification. Before the specimen is viewed under the microscope, it is cultured — placed in a container in which the gonococcus can multiply.

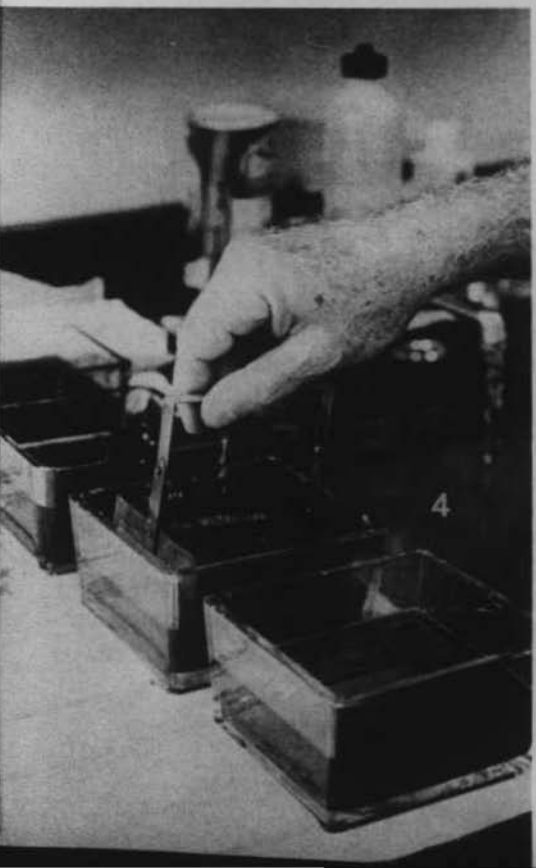
For an organism that is so difficult to destroy inside the human body, the gonococcus is amazingly delicate outside. Until recently, it was not possible to culture the gonococcus easily and cheaply enough to allow a practical screening program. For this reason, not enough emphasis was placed on trying to find females with gonorrhea. The disease usually shows no early symptoms in females, and since diagnosis is so difficult, many women develop late effects of the disease, which include serious symptoms. Now new methods of culturing the organism offer much more hope.

The Search

After a 48-hour incubation period, gonorrhea culture specimens are given an identification number (1). After numbering, the culture bottles are injected with a chemical that causes bacteria to change color (2). Only five-to-ten percent of the bottles display a color change. This simple procedure reduces the number that must be examined with the microscope.

Material from the bottles is placed on a microscope slide (3). The slides are then stained by the four-step Gram process (4); the color they take up in this step is part of the evidence used in identification. Finally, the bacteria are examined under the microscope (5). Their shape, color, and the manner in which they group together are studied. These characteristics (along with a patient's history of exposure to the disease) are usually enough for positive identification.





Anaerobic Bacteriology

"We still get an occasional specimen labeled 'sterile abscess," says a Division bacteriologist. "This sounds pretty silly, because it literally means an infection without an organism, without a cause."

"What 'sterile abscess' often means is that none of the standard test for bacteria have been positive, or nothing has been found under the microscope.

"We are entering a whole new world in bacteriology. It is as if we were back in the days of Pasteur and Koch. Only in the past few years have we had the information and practical methods to identify and classify the organisms responsible for these mysterious infections."

Within the human body live billions of bacteria, regardless of our state of health. Many of these bacteria, living in our intestinal tracts, are considered beneficial, aiding in the digestion of certain foods. These are called indigenous bacteria — they are always with us. In fact, one of the drawbacks of antibiotics is that they kill these useful organisms.

However, some of them are not entirely harmless. They can coexist with us perfectly well, until the integrity of the intestinal wall is broken — as through a penetrating wound, surgery, disease, chemotherapy. We have recently proven that these organisms can cause infections in damaged tissue.

Anaerobic (living without oxygen)

The problem that has held back research for so long is that many of these bacteria cannot be cultured, or grown, in the presence of oxygen. The air we breathe is poisonous to them. They must be grown in sealed containers, filled with carbon-dioxide.

Anaerobic bacteriology is at least 50 years behind conventional (aerobic) bacteriology in identification and classification. These organisms cannot be identified with the old techniques. They often do not show up under the microscope. Also, conventional techniques for identification take advantage of the fact that we often know what to look for, because certain organisms go with certain symptoms. The study of anaerobic bacteria is so new, that we have no clues — each culture starts as a complete unknown.

The gonococcus requires carbon dioxide in its atmosphere in order to grow. Recently, culture medium has become available in sealed bottles containing carbon-dioxide. The culture can be shipped easily from a doctor's office to the lab.

Once at the laboratory, the specimen is placed in an incubator to maintain the required temperature of 36°C. (a little less than normal body temperature) for 48 hours. At the end of this waiting period the day's collection is numbered, so that confidential records may be kept. The culture medium surfaces are then sprayed with a solution called oxidase, which combines chemically with bacteria, causing them to change color. As a rule, the majority do not change color, and are read as negative. Only five-to-ten percent of the bottles show a color change and require further examination.

The second stage is visual identification through the microscope, which separates *Neisseria gonorrhoeae* from other bacteria which might have caused the first stage reaction.

Microscopic examination confirms the bacteria as being of the genus *Neisseria*, which includes several harmless and not-so-harmless species (one of which is responsible for cerebrospinal meningitis). This laboratory finding plus symptoms and history of exposure are usually sufficient to confirm the infection as gonorrhea. If for some reason the diagnosis is in doubt, the organisms can be cultured in special media to determine what food supply is necessary for growth. Each of the *Neisseria* species can use different kinds of nutrients. When these are identified, the diagnosis is made certain.

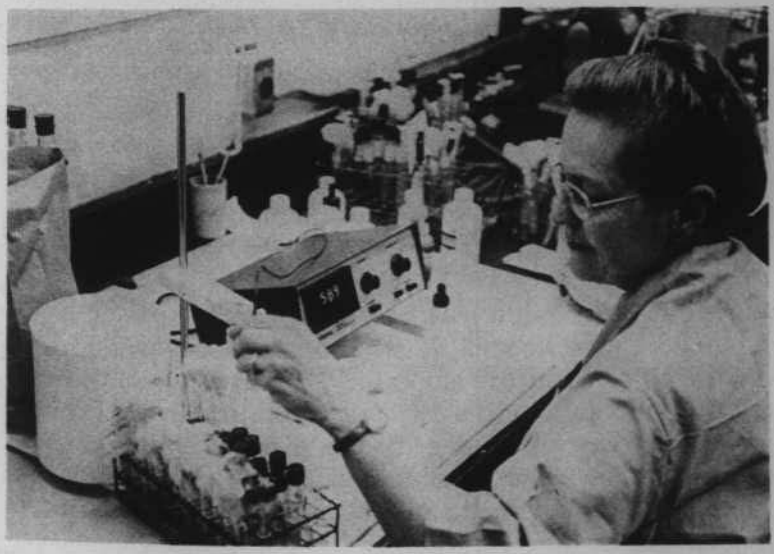
More than 500,000 gonorrhea cultures are examined each year by the Division of Health laboratories. The largest number are examined in Miami, followed by the Tampa and Jacksonville laboratories. A few years ago this volume would not have been possible. Streamlined laboratory procedures, plus the development of culture media that can be shipped, have made possible a screening program of these dimensions. In the recent past, the epidemic of gonorrhea was attributed to the difficulty of diagnosing asymptomatic female cases. Now the laboratories are equipped with the necessary techniques. The problem remaining is that of educating the public to be tested frequently.

A medical bacteriologist does not have time to consider every possible test that might be run. Tests must be reduced to the absolute minimum. About six years ago a group of scientists ran hundreds of tests on thousands of anaerobic bacteria. A computer compiled the results, and found the bare minimum of tests needed to identify a specific variety.

We have isolated and named hundreds of varieties, but we do not know how they behave, which ones are potentially harmful, or what we can do for treatment.

"With the aid of computers," says a bacteriologist, "we expect to make as much progress in this new field in ten years, as the older bacteriologists made in a hundred." We have the advantage of their discoveries, of knowing their mistakes, and of having equipment that wasn't available until recently. Identifying these bacteria takes sophisticated electronic equipment.

The Division of Health has one of the few laboratories in the world devoted to research in the field of anaerobic bacteriology. Specimens from doctors around the state are analyzed. Someday soon, it is hoped, data from these analyses will clear up the mysteries of the "sterile abscess," make operations safer, and make wounds less dangerous.



A Search For Identity

A Greek philosopher was once asked to describe **man** with the fewest possible words. The philosopher replied, "a featherless biped." By this, he meant that you could separate man from all the living creatures by asking only two questions: "Does it walk on two legs," and "Is it without feathers." If the answer to both of these questions is "yes," you can be sure it is a man and not some other creature. Unfortunately for the philosopher, one of his students thought he was oversimplifying things a bit. At the next meeting, the student produced a plucked chicken and said, "Behold, a man!"

The story has its serious side. When we wish to identify something or someone, whether it be our car in a crowded parking lot, or a friend at a party, we do not have time to list all the thousands of ways they differ from everything and everybody else. Instead, we look for the two or three features that combine to make an individual unique. For example; there may be many red cars; there may be many cars made in 1970; there may be many Fords. But in a parking lot, there probably are not many, red, 1970 Fords.

Leaving the microscope behind, the anaerobic bacteriologist becomes a chemist. She dips a pH (acid/base) meter probe into a bacteria colony as part of the identification process. The wavy-lined output of the gas chromatograph identifies the chemical wastes of a colony. Research into anerobic bacteriology promises to answer questions about many mysterious infections, as well as making intestinal surgery much safer.

Heart Disease Screening

The Bureau of Adult Health and Chronic Diseases is currently doing basic research in the prevention of heart disease. Nearly two hundred thousand Floridians have taken a battery of tests provided by the Division of Health. These tests include blood samples which are analyzed at the Central Laboratory. Follow-ups of these people have provided us with knowledge of "risk factors" that will help physicians identify and treat people who are likely to have heart attacks.

Sickle Cell Screening

Sickle cell trait and sickle cell disease (sometimes called sickle cell anemia) are inherited disorders of the red blood cells. People with the trait show few or no symptoms, but when two people with the trait marry, there is a chance their children will have the disease. This is a very serious, painful condition which often requires hospitalization and frequently shortens the victim's life.

Sickle cell disease is believed to have originated in parts of Africa and Asia, where the trait provided some resistance to malaria. The disease can affect both blacks and caucasians whose ancestors came from these parts of the world.

With the aid of the Medicaid program, the Division of Health tested nearly 30,000 people in 1973 for sickle cell trait and sickle cell disease. A new specimen collection kit, (similar to the PKU blotter kit) was introduced, simplifying the task of obtaining and shipping blood specimens to the laboratory.

Tuberculosis

Recent advances in the knowledge and treatment of tuberculosis have enabled Florida to close all but one of its TB hospitals. Although the number of cases has not declined, the rate (affected proportion of the population) has dropped, and modern drugs render patients noninfectious within a few weeks. In the near future, regular hospitals will be equipped to handle all TB cases.

Although both tuberculin tests and x-rays are used to screen the general population, positive identification of the disease requires that the bacteria be cultured in the laboratory. Tuberculosis culture and identification is among the more difficult laboratory procedures, but it must be done to securely identify the disease, and periodically after treatment to check for possible reactivation of the infection. In 1973, the Division of Health laboratories examined more than 55,000 specimens for tuberculosis.

And Numerous Others

It simply is not possible here to list and describe all the services performed by the public health laboratories, nor even to more than mention the personnel behind the scenes who prepare culture media, sterilize glassware, tend the animal colony, ship and receive specimen containers, and keep accurate records.

The laboratory is a flexible institution. Of the hundreds of different tests now being performed, some were used more frequently in the past, and some will probably need more attention in the future. We have conquered most of the epidemic killers through isolation and immunization, but there is no guarantee that such conquests are permanent. When a disease is not currently a threat, people tend to neglect their immunizations. This can leave a community susceptable to an epidemic. The laboratory stands ready to help in such emergencies — by identifying the organism responsible, and by identifying the source, such as contaminated water.

The virology laboratory illustrates these principles. It aids physicians in diagnosing virus diseases, such as influenza, measles, polio and encephalitis; it examines animals for rabies when a person has been bitten; it surveys "vectors" — birds, insects, and animals that may spread diseases to man. The Division of Health has done much original research in this field: identifying bats and raccoons as common carriers of rabies; identifying the mosquito *Culex nigripalpus* as a carrier of the encephalitis virus.

The Division of Health Laboratories provide four major kinds of service for the State of Florida:

*provide routine screening tests and clinical laboratory services for people who cannot afford the services of private laboratories.

*maintain the standards of private clinical laboratories through the Laboratory Improvement Program.

*identify the less common bacteria and pathogenic organisms, which smaller laboratories are not equipped to do.

*discover through research, new and more efficient test procedures, and greater knowledge of areas which contain unsolved problems.

Many, if not most, of the programs provided by the Division of Health are tied to the laboratory: Research currently in progress in chronic diseases, such as heart disease, cancer, diabetes, and